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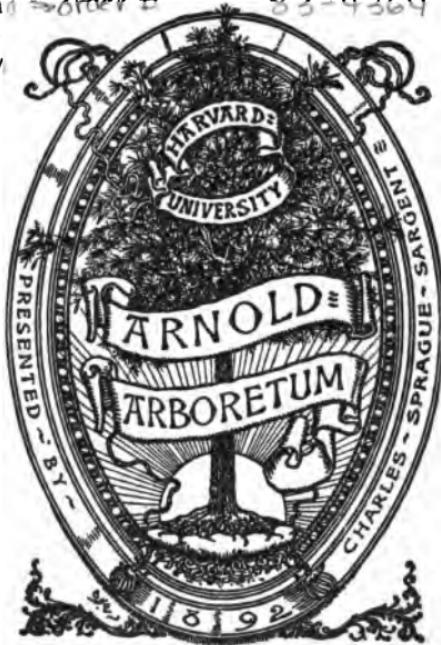
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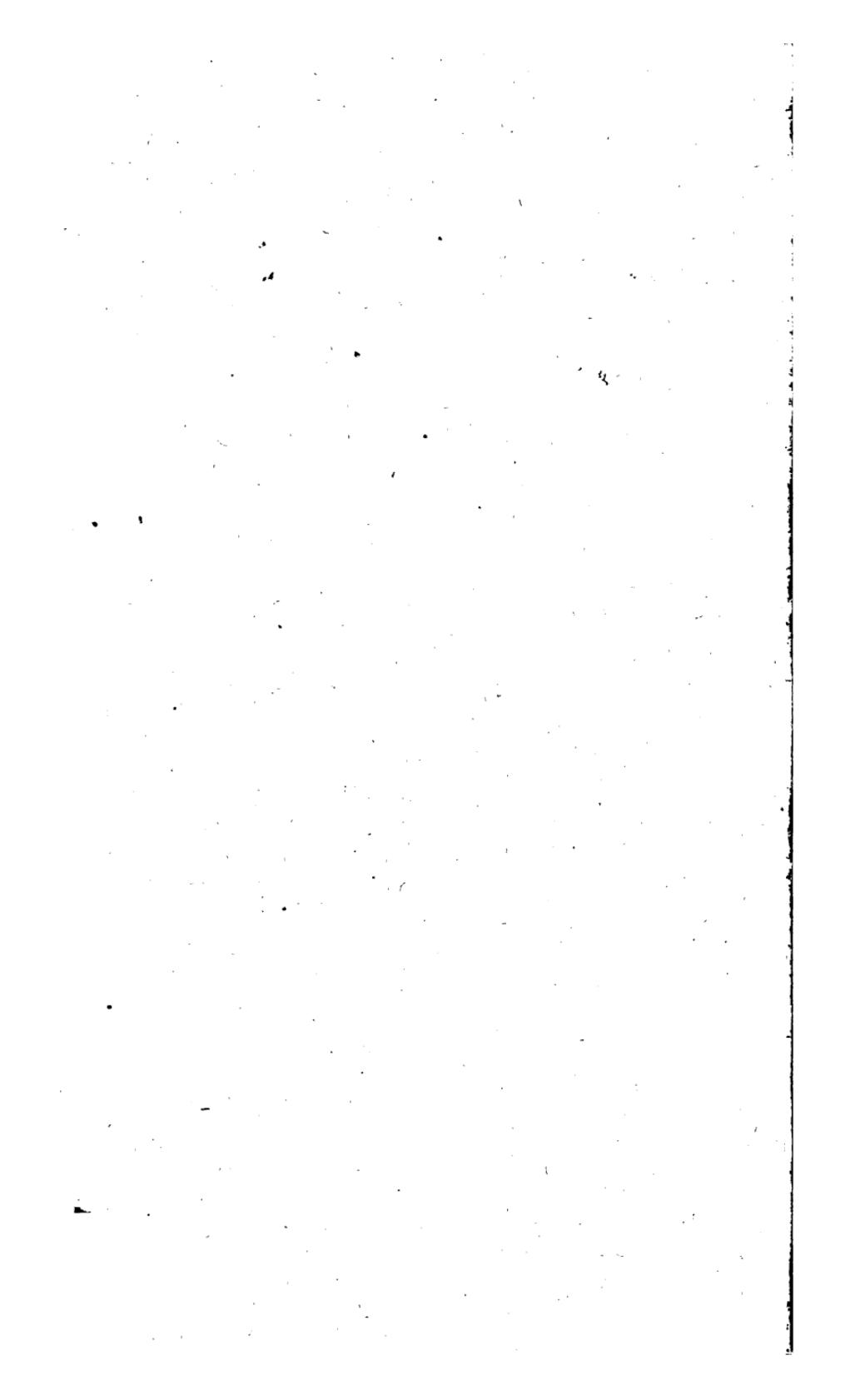
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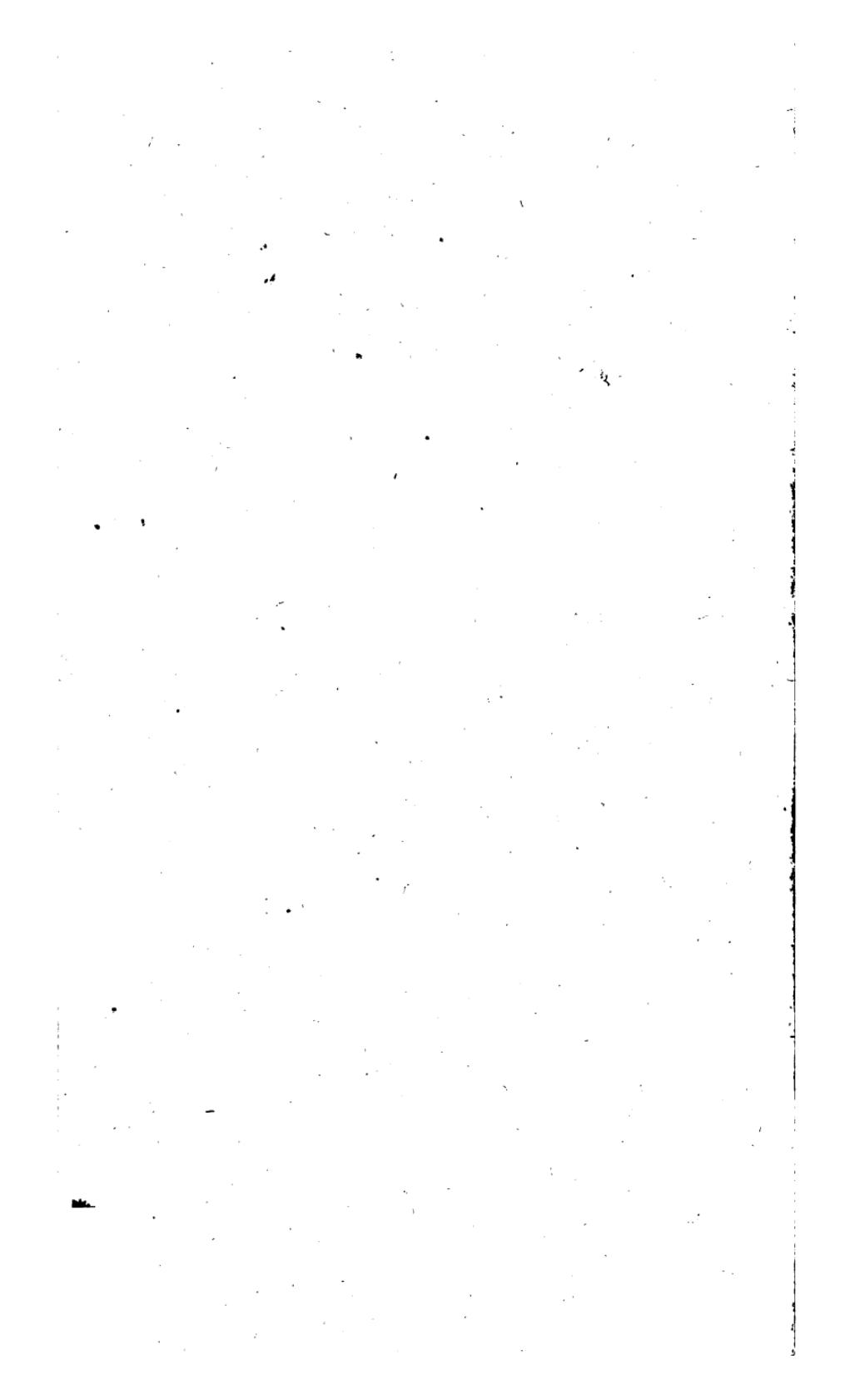
1876.

COMPILED BY

Dr. ADOLPHUS ERNST,

PROFESSOR UNIVERSITY AT CARACAS, MEMBER OF
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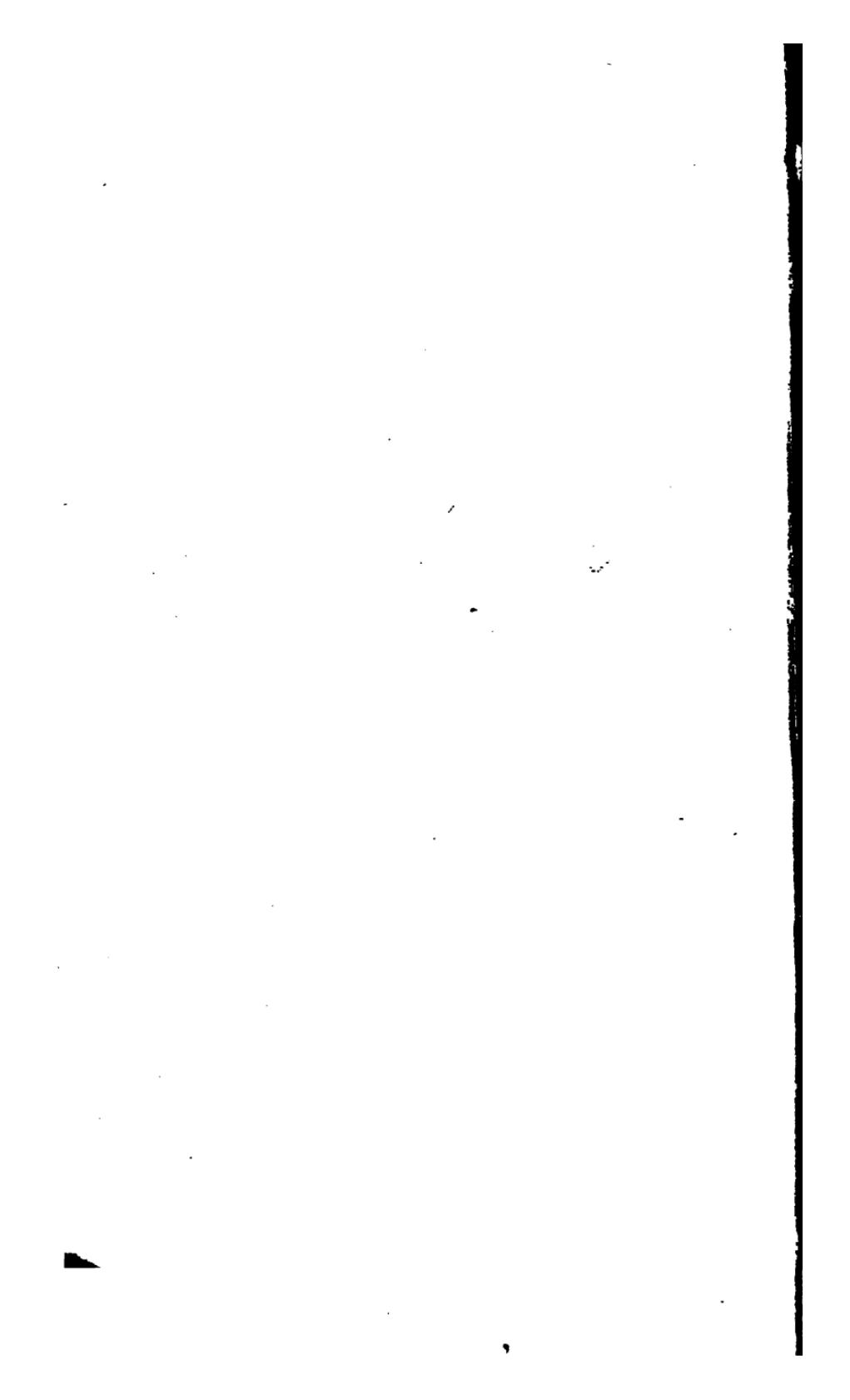
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GENERAL INTRODUCTION.

The United States of Venezuela are situated in the most northern part of South America, between $1^{\circ} 8'$ and $12^{\circ} 16'$ north latitude, extending from $60^{\circ} 36'$ to $75^{\circ} 38'$ longitude west from Paris. The Republic is bounded north by the Caribbean Sea, from Cape Chichibacoa on the peninsula Goajira eastward to Cape Paria; northeast by the Atlantic Ocean as far as the mouth of the River Pumaron; east by British Guayana; south by Brazil; and west by the United States of Colombia, formerly called New Granada.

The length from east to west is about nine hundred miles; its greatest breadth from north to south is nearly seven hundred miles. The area of Venezuela is estimated by the distinguished geographer, A. Codazzi,* at thirty-five thousand nine hundred and fifty-one square leagues (twenty leagues is one equatorial degree), or three hundred and twenty-three thousand five hundred fifty-nine square miles, or somewhat more than Texas and Louisiana together.

The total boundary line measures three thousand eight hundred and forty miles, of which, one thousand five hundred and twenty-four miles are oceanic coasts with a great number of excellent harbors, the most notable ones being Cumaná, Carúpano, Barcelona, La Guaira, Puerto Cabello, La Vela de Coro, and Maracaibo.

Ciudad Bolívar (formerly called Angostura) is a well known harbor in the river Orinoco, about three hundred miles from its mouth.

No fewer than seventy-one islands fringe the coast, the largest being that of Margarita, which constitutes one of the Federal States, officially called New Sparta. The others constitute the territory called *Colon*, by decree of August 22d, 1871. On some of them (Orchila, Los Roques, Tortuga, Testigos, Aves) there are considerable deposits of phosphate of lime and phosphate of alumina,

* Codazzi published *Resumen de la Geografía de Venezuela*, Paris, 1841, 8vo. 648 pages; *Mapa físico y político de la República de Venezuela*, 1840, Paris (scale 1-120,000), and, *Atlas físico y político de la República de Venezuela*, Paris, 1840, 19 maps, large in-folio.

samples of which are exhibited in the mineralogical part of the Venezuelan collection. The Orchila deposit is worked by an American company ; the Los Roques mineral (phosphate of alumina) was contracted by Mr. P. Spence of Manchester ; it appears however, that its utilization presents some great difficulties, on account of the iron it contains.

The vertical development of the country is far less favorable than its horizontal formation. About eighty thousand square miles are occupied by mountains, forming three separate systems. The first is a ramification of the Colombian Andes, the second comprises the Venezuelan coast chains, running in a northeasterly direction and forming a gigantic wall between the extensive plains of the interior and the narrow strip of land washed by the waves of the Caribbean Sea, and the third is the Sierra Parima in Guayana on the Brazilian boundary. The Venezuelan Andes reach their greatest height in the snow-topped *Sierra Nevada* of Merida (four thousand five hundred and sixty metres over sea level) ; in the coast chains are the culminating points, the *Silla* (*i. e.* Saddle) of Carácas (two thousand six hundred and twenty metres) and *Naiguatá* (two thousand eight hundred metres). The Sierra Parima is very little known.

The coast chain is undoubtedly a great obstacle to inland communication ; it is however, already crossed by several good cart-roads, (namely, from La Guaira to Carácas, and from Puerto Cabello to Valencia), and between the first two places, the construction of a railroad has been resolved, the tracing of the most convenient direction being already concluded.

There are generally three chains running more or less parallel, southward of which extend the plains or *Llanos* (pronounced *yanos*) covered by short grass, only occasionally interrupted by isolated clumps of trees, the *palma llanera* (*Copernicia tectorum* Mart.) with large fan-shaped leaves being the prominent feature of this peculiar vegetation. These plains are the seat of a large number of cattle-farms, which we shall describe hereafter.

Traveling on towards the south, we reach the luxurious virgin forests on the banks of the Orinoco, being an almost inexhaustive treasure of articles, interesting to science and industry, most of them scarcely known by their names.

The geology of Venezuela is pretty well known, since the important investigations of Humboldt and H. Karsten have given impulse to further exploratory studies. The coast chain is, generally speaking, built up of gneiss ; in the Andes appears frequently a bluish-

gray limestone, and the Llanos are the dry bottom of a tertiary lake or gulf. A detailed geognostic description would be out of place; it may be sufficient to refer to the list of minerals to be given in the second part of this catalogue. It is, however, necessary to say here a few words on the volcanic phenomena observed in the country. There are no active volcanoes in the Republic, but earthquakes are not uncommon, although they are very seldom of so disastrous an intensity as that of 1812, when Caracas and many other towns were ruined, and that of May 1845, when some towns in the western part of the Republic, especially San Cristoval, capital of the State of Tachira, suffered considerably.

Venezuela enjoys a highly developed system of river communication. The interior trade is most admirably facilitated by the River Orinoco and its numerous tributaries which bisect and traverse the Republic for nearly its entire length and breadth, thus giving to the producing centres the means of easy and rapid communication with the sea-board, and from thence to the markets of the world.

Ciudad Bolivar, on the right bank of the Orinoco, has therefore a large and active commerce, supplying the country on both sides of this majestic stream with merchandise of every description, and sending down various and highly valuable productions of the interior country. It is situated in $8^{\circ} 8' 11''$ north latitude and $18^{\circ} 16' 17''$ longitude east from Washington. The river at this point is somewhat narrowed, forming a strait, which is, however, about one mile broad, while the mean height of the water over sea level is said to be one hundred and fifty feet.

At a distance of about one hundred miles above Ciudad Bolivar, the channel of the Orinoco makes two abrupt curves, forming a somewhat S-shaped figure, from which this point has derived the name "*El Torno*," or "*The Turn*." The river here contains many rocks, islets, and three larger islands, and between them there are four distinct channels, the one nearest the right bank being the best. The water moves through these channels with considerable velocity, forming the rapids, called *Raudal de la Camiseta*. There is, however, no danger in passing them. The highest part of the rapids is called *Boca del Infierno* (*i. e.* Mouth of Hell), a name that was given it by the early Spanish explorers, whose heavy and imperfectly built brigantines were ill-constructed to overcome the strong current encountered at this place. From this point the river resumes the direction W. N. W. for one hundred miles, and after hav-

ing passed between Caicara on its southern bank and Cabruta on the right, it turns suddenly at almost right angle towards S. S. W., receiving at this inflection the waters of the river Apure.

Between Ciudad Bolivar and the Apure, the fall of the Orinoco is about three and a half inches per mile, and one is surprised at the force of the current on so slight a fall, but this strong current depends less on the difference of the level, than on the immense accumulation of the higher waters, a circumstance which is likewise noted in the Mississippi. Navigation by sailing vessels ascending the Orinoco is therefore at all times a most difficult and toilsome undertaking. It will not be out of the place to give a short description of the system generally employed. The current being strongest in the middle of the river, the sailing boats are obliged to remain as close as possible to the banks, and in periods of high water they not unfrequently pass over the tops of saplings and trees; oars are of no avail; the sailors use a strong rope or cable, made of Chiquechique fibres about one inch thick, and several hundred feet long, (a sample is in the collection). The Chiquechique is a kind of palm-tree (*Attalea funifera Mart.*), which grows abundantly on the swampy banks of the upper Orinoco and its tributaries. This rope is fastened to the fore part of the vessel, and is then drawn into a boat, two men row ahead of the vessel, and at a convenient distance fasten the other end of the rope to a long tree or rock; they then return on board, and the rope is hauled aboard, until the vessel is drawn up to the point where the cable is attached. This operation is repeated until the passage is completed, progress being extremely slow and laborious. This mode of navigation is called *á espia y garabato*. It frequently happens that boats from Ciudad Bolivar, going up to Nutrias, a town on the Apure, are three months on the passage. Now steamers are running on those waters, as will be stated farther on.

The river Orinoco rises after the vernal equinox, and usually continues until the middle of April, when a slight decrease is observable, continuing until about the middle of May, when the river rises very rapidly, reaching its maximum height during the month of August, where it commences slowly to recede, reaching low water mark in January, and thus remaining until the middle of March. At Ciudad Bolivar, from actual measurement, the river at low water is about sixty feet deep, while at high water it measures 140 feet, thus giving a range of eighty feet.

Very little has been done hitherto to facilitate navigation on its waters. The mighty stream is to-day certainly not in the same con-

dition in which it was found by the daring adventurer Diego de Ordaz in 1531, who first ascended it as far as the mouth of the Meta; nature itself has effected many changes, and does so continually. The time, however, has come, when Venezuela and her enlightened rulers comprehend the important fact, that the Orinoco is the great artery of commercial life for the nation, and engineering skill will be applied for the removal of all the obstacles which have hitherto obstructed the navigation of this great river and its tributaries.

From the mouth of the Apure the Orinoco continues southwest to the mouth of the Meta, its most important affluent. It descends from the eastern slope of the Colombian Andes, in the vicinity of Bogotá, and passes through vast grassy and fertile plains, not unlike the prairies of Kansas and Western Missouri. It has been ascended by steamboats as far as Cabuyaro, within sixty miles of Bogotá.

The upper Orinoco, between the mouth of the Meta and that of the river Guaviare, contains the rapids of Atures and Maypures. They are obstacles to navigation, although by far not so dangerous as some sensational travelers have described them. Near the mouth of the Guaviare is situated the town of San Fernando de Atabapo, and the shortest glance at any map of the upper Orinoco must impress every one with its admirable situation.

Three mighty rivers unite in its immediate vicinity: the Atabapo, Guaviare, and Orinoco. The Orinoco presents, at this place, a very great inflection, so that its upper part comes from the east, and its lower part runs almost to the north. It would be difficult to find any other town situated at the point of junction of four large river channels, and yet with these advantages the town is comparatively small, and its commerce insignificant. The reason is obvious. It requires communication with the outside world. Fortunately, the time is approaching when a regular line of steamers will change this state of things, and then San Fernando will become the great staple centre of the upper Orinoco, where all the productions of that virgin country will accumulate.

Further to the south we have the bifurcation of the Orinoco, which sends into the Cassiquiare a large portion of its waters southwest to the Rio Negro. Hitherto, this fact has been more interesting to geographical science, than important to commerce, but the day must come when those now silent waters will be ploughed by swift steam-boats, and their smoke will rise up to the majestic crowns of the forest giants shading its mysterious banks.

Ascending one hundred and thirty miles, we reach on the banks

of the Rio Negro the frontier between Venezuela and Brazil, and floating down for many miles past many flourishing towns, we salute at last the rolling waters of that king of rivers, the mighty Amazon, which from the lofty heights of its Andean birth-place, crosses the South American continent in its widest part, forming the largest and grandest fluvial system in the world, where Martius, Spix, Bates, Wallace, Spruce, Orton, Agassiz, Herndon, Gibbon, and many others, have discovered precious treasures for science and industry, that must be matters of commerce and curiosity for centuries to come.

We have entered into these details because of our thinking them of interest to the mindful reader who is aware that the large streams are the best and cheapest channels for the civilizing influence of commerce. Venezuela is unquestionably highly favored also in this respect, and if it should be her happy destiny to enjoy, in undisturbed peace, the great blessings of liberal and enlightened governments, as it fortunately does actually, its fluvial system will be soon one of the most efficacious means of progress and development.

The climate is of course very different in the different parts of the country ; some general observations referring to it will be made further on in the chapter dedicated to agriculture.

The vegetation is rich and luxurious as in all tropical countries. Even a most condensed description would be by far two extensive for the limits of this pamphlet, and to our great regret we must refer our readers to the special works of descriptive botany by Humboldt, Karsten, and others.

All the domestic animals of the temperate zone are also found in Venezuela, and on the plains cattle-farming is the almost exclusive occupation of the inhabitants. We shall return to this subject in a special chapter of the second part.

Wild animals are already scarce in the cultivated parts of the country. Amongst them we have twenty-five species of monkeys, a great many bats, one species of bear, (*Ursus ornatus*), foxes, several representants of the weasel-tribe, the jaguar, and some other large cats, about a dozen species of opossums, a considerable number of rodentia, (amongst them some very interesting species, as the *Chigüire* or water-hog; the largest animal of this order), porcupines, ant-eaters, three species of sloths, armadilloes, the tapir, and two species of wild pigs, called *vaquiras*, several deer, and finally the manati and some other cetaceous animals.

Our woods are the home of a great number of beautiful birds, displaying all the colors of the rainbow, and some of them (viz., the

colibris) adorned with the glowing hues of polished gold and precious stones.

Our rivers are the abode of three or four species of crocodiles, and in some places these huge and voracious reptiles are certainly a great nuisance. In the Orinoco are millions of turtles; snakes are numerous but by far most of them are inoffensive animals. The most venomous snakes of Venezuela are the rattlesnake, the mapanare (*Lachesis rhombata*), and the coral (a species of *Elae*).

Further information on the fauna of Venezuela we are compelled to omit; the zoological reader will know where to look for it.

Having thus given a rapid sketch of the natural aspect of the country, we shall proceed to its statistical description.

Statistical data of a reliable character were formerly in vain looked for. It is one of the most important results which the actual government of General Guzman Blanco has realized, that we know now something in this respect. The Statistical Office at Caracas (Direccion General de Estadistica), was established in 1871, and under the very able management of Sr. A. Aureliano Level there has been issued a series of highly interesting statistical publications. The first census was taken in November, 1873.

It gave the following result:

Names of States.	Inhabitants of States.	Capitals.	Inhabitants of Capitals.
Federal District.....	60,010	Caracas.....	48,897
State of Apure	18,635	San Fernando..	3,053
“ Barcelona	101,396	Barcelona.....	7,674
“ Barquisimeto.....	143,818	Barquisimeto..	25,664
“ Bolivar	129,143	Petare.....	5,621
“ Carabobo	117,805	Valencia.....	28,594
“ Cojedes	85,678	San Carlos.....	10,420
“ Cumana	55,476	Cumaná.....	9,427
“ Falcon	99,920	Coro.....	8,172
“ Guárico.....	191,000	Calabozo.....	5,618
“ Guayana	3,453	Ciudad Bolívar.	8,468
“ Guzman	67,849	Mérida.....	9,727
“ Guzman Blanco..	94,151	La Victoria	6,523
“ Maturín	47,863	Maturín	12,944
“ Nueva Esparta..	3,083	Asuncion	2,758
“ Portuguesa	79,984	Guanare.....	4,674
“ Táchira	68,619	San Cristóbal..	3,845
“ Trujillo	108,672	Trujillo	2,648
“ Yaracuy.....	71,689	San Felipe.....	6,820
“ Zamora	59,449	Barinas.....	3,950
“ Zulia	59,235	Maracaibo	21,954
	1,725,178		236,469

Besides this there are the

Territories of Amazonas,	23,048 inhabitants.	
" Mariño*	6,705	"
" Goajira,	29,263	"
<hr/>		
Total,	1,784,194 inhabitants.	

There would be consequently but 5.5 inhabitants for each square mile if the whole area of the country were inhabitable.

The population is a mixed one; but it is impossible to give any correct statements as to the relative proportion of the different races. The independent, or savage Indians in the woods of the interior were not included in the census mentioned before.

Agriculture and *cattle farming* are the principal occupations of the people; on both we shall give some notes in the second division of this catalogue.

Mining is done to a certain extent in Guayana (gold), Carúpano (brimstone and argentiferous lead ore), and Aroa (copper ore). Further particulars will be found in part II.

The *industry* of the country is far from being developed; although there exist manufactories of soap, candles, glue, liquors, matches, bricks and tiles, tanneries, printing establishments, etc., whilst the different *trades* are well represented by a great many skillful and well-to-do tradesmen.

More important is the *commerce*, the natural ally of our agriculture. In the fiscal year beginning July 1st, 1833, and closing June 30th, 1834, the total export had a value of but 2,566,800 Venezuelan dollars (one Venezuela dollar is equal to 5 francs), whilst in the last year (1874 to 1875) it reached the high figure of V17,304,050.90†; so that in 40 years the value increased about seven times.

The following tables are taken from the *Memoria del Ministerio de Hacienda*, 1876, (Official Report presented by the Ministry of Finance), page 356, 357:

* This Territory was formed for strategical reasons during the last civil war, but it is now re-united with the State of Cumaná.

† The capital letter V before any figure means Venezuelan dollars.

Export 1874 to 1875

	Kilogr.	Value.
To Germany.....	14,870,158	V5,449,752 86
Spain	1,309,175	396,814 44
Columbia.....	2,819,253	505,007 22
United States.....	9,821,619	3,799,170 81
France	10,598,829	2,598,088 19
England	2,220,297	290,975 60
Italy	648,625	48,618 70
Danish Colonies	187,754	19,512 64
Spanish id.	32,740	9,868 08
French id.	350,186	87,677 21
Dutch id.*	10,138,762	2,642,960 67
English id.	1,982,401	1,455,959 48
	54,929,279	V17,304,050 09

Import 1874 to 1875.

[From reports given by the consuls of Venezuela in foreign ports.]

	Value.
From Germany (Hamburg).....	V1,541,231 94
" England	2,513,847 75
" United States, New York.....	V2,079,814 38
" " Philadelphia....	577,171 35
	2,656,985 73
" France.....	1,817,378 77
" Spain.....	346,554 00
" Italy.....	29,878 75
" Trinidad.....	772,740 39
" Curazao.....	1,016,882 27
" Puerto Rico.....	408 00
" Canary Islands.....	3,582 00
" St. Thomas.....	179,229 07
	V10,877,608 67

This number does not express the real value of the imports, as the information obtained from certain places was not complete. The total imports may be estimated at about twelve million Venezuelan dollars.

* Curazao, a small Dutch Island near the coast of Venezuela, is almost entirely dependent on the commerce with Venezuela.

In the foregoing fiscal year, 1873 to 1874, the imports were 28,- 983,352 kilogr.; value, V12,343,436. The exports, 49,107,735 kilogr.; value, V14,788,624; total commercial movement, 78,090 087 kilogr.; value .V27,127,060. Consequently exports increased by 5,821,544 kilogr.; value, V2,520,426.

The foreign commerce of Venezuela has increased much in the last five years, as may be seen from the following table, showing the total value of exports and imports :

COUNTRIES.	1870.	1871.	1872.	1873.	1874.	Total.
United States	\$V 3,602,862	4,692,862	7,347,924	8,863,223	8,429,065	32,935,325
Germany.....	2,082,630	4,972,956	6,061,897	7,572,886	6,672,346	27,362,715
France.....	8,160,000	2,120,000	2,840,000	3,060,000	4,400,000	15,680,000
England.....	1,149,295	1,902,475	3,351,495	3,196,960	2,892,955	12,493,180

The principal article of export is coffee, 35,721,130 kilogr., or 714,422 bags, at 50 kilogr. each ; the next cocoa, 4,328,577 kilogr.; then comes cotton, 2,347,815 kilogr. ; and hides, 1,357,925 kilogr.

For the year before these figures were respectively : 31,082,417 kil., 8,164,411 kil., 3,587,468 kil., and 1,645,627 kil., resulting in an increase for coffee and cocoa, whilst cotton and hides fell off. The reason is that cotton is less cultivated, the prices being too low. A great many hides are tanned now in the country, so that common leather is no longer imported.

Other articles of export are: dividive, wood, tobacco, and gold. No sugar is exported, the quantity manufactured in the country is scarcely sufficient for the consumption.

Venezuela imports from the United States, wheat flour, tallow and lard, hardware, petroleum, lumber; from England, hardware, linen and cotton tissues; from France, silk, fancy articles, paper, china, jewelry, perfumery, drugs, wine, brandy, preserves, oils; from Germany, hardware, glass, china, paper, clothing material of all kinds, drugs, beer, butter, preserves, etc.

The principal seaports are La Guaira and Puerto Cabello. The former had in the last fiscal year a shipping movement of one hundred and seventy-five vessels of one hundred and forty-eight thousand three hundred and sixty tons; the latter two hundred and fifty-six vessels and one hundred and twenty-six thousand two hundred and sixty tons. The port of Maracaibo is closed to foreign commerce.

Several lines of ocean steamers touch at the Venezuelan ports : the Hamburg line, the French line from Saint Nazaire and Martinique, and a branch line of the Royal Mail. There is at present no direct steam connection with the United States, and all the trade between the two countries is carried by sailing vessels.

The interior commerce has lately been much facilitated by the new cart roads built under the actual government, so that very soon a net of well constructed roads will cover the whole country, whilst five or six years ago there were but two roads, namely, from La Guaira to Carácas, and from Puerto Cabello to Valencia.

In the last year more than one million and a half of Venezuelan dollars were spent in these public works. The total length of roads already finished is about one thousand miles. Venezuela has not yet any railroads. It has been mentioned already that the building of a line between Carácas and La Guaira has been resolved ; the survey is made and the preparatory work almost concluded upon.

The postal service is well organized, and telegraphic lines connect the principal towns (Puerto Cabello, Valencia, La Victoria, La Guaira) with the capital, other lines being in actual construction. The Republic has postage stamps of one, five, ten, and twenty cents; periodicals printed in the country are free of postage.

There exist treaties between Venezuela and several other countries, viz: with England (1834, October 29th), New Granada (23d July 1842), France (8th February 1858), Spain (March 30th, 1845), Belgium (February 8th 1858), United States (August 27th 1860), Italy (July 19th, 1871), and Denmark (December 19th, 1872). The diplomatic body residing at Carácas is actually composed of the following members: the Envoy Extraordinary of Spain, the Minister resident of the United States (the Hon. Thomas Russell), the Minister resident of England, and the Chargés d'Affaires of Brazil, Italy, France, and the German Empire. Other countries are represented only by Consuls. Venezuela has an Envoy extraordinary at Washington, a Minister plenipotentiary at Madrid and Paris, a Chargé d'Affaires at the Imperial Court at Berlin, and Consuls in the most important commercial centres of Europe and United States (New York, Philadelphia, Baltimore, and New Orleans).

By decree of July 18th 1872, the decimal system has been adopted for coinage, measures and weights. The monetary unit is the Venezuelan dollar, equal to five francs, or 0.985 dollars gold. It is divided in one hundred cents. The following coins are already in circulation: *five dollar piece* in gold, weight 8.0645 grammes, fineness 0.900,

diameter twenty-two millimetres; *half dollar piece* in silver, weight 12.50 gr., fineness 0.835, diameter thirty millimetres; *twenty cent pieces* in silver, weight 5 gr., diameter twenty-three millimetres; *ten cent pieces* silver, 2.5 gr., fourteen millimetres, *five cent pieces*, silver, 1.25 gr., diameter fifteen millimetres. Actually nickel coins are being made in Philadelphia for Venezuela, of one cent and two and a half cents each. The coins show on one side the portrait of Bolivar, with this inscription: *Bolivar, Libertador*. On the other side there is the coat of arms of Venezuela, with the inscription *Estados Unidos de Venezuela* and the indication of the weight, fineness, and the year of coinage. (Decree of May 17th, 1871).

At the same time circulate the notes of the *Compañía de Crédito*, now called *Banco de Venezuela*. They have always been at par.

The duty on the imports is calculated on the gross weight of merchandise, the latter being divided in eight classes, one free of duty, the others paying two, five, fifteen, twenty-five, fifty, one hundred, and two hundred cents respectively per kilogramme.

The total amount of import duty was, 1873-1874.....	V4,565,857 72
And in 1874-1875.....	V4,006,288 64

Less—559,569 08,

in consequence of a disturbance of public peace in the State of Coro.

To this duty must be added twelve and a half per cent. more, a tax called *aduana terrestre* (or land custom), the amount of which is employed for the construction of new cart-roads, and the improvement of those existing.

The articles of export pay likewise a small duty: the first class (indigo, cotton, cocoa, coffee, hides) fifty cents per fifty kilogr. gross weight; the second class (salt) forty cents, the third (all the other productions of the country) is free.

Public education and intellectual culture are making considerable progress under the enlightened government of General Guzman Blanco. The country has several universities, the one at Carácas being, the most important. It has about twenty professors, and over two hundred students, a library of more than twenty-five thousand volumes *, a physical cabinet, a laboratory of chemistry, a museum

*The compiler of this catalogue, who is actually head librarian of this institution, begs leave to inform all parties concerned, that, by order of Government, he is desirous to exchange the official publications issued by the Government of Venezuela for all kinds of books published by other Governments, scientific corporations or literary men.

of natural history, and occupies a very handsome and well-constructed building in the centre of the city. Colleges and preparatory schools exist in all the towns of the Republic, and the number of elementary schools has increased very much through the care of President Guzman Blanco, since the issue of the decree of June 27th 1870, which gave a new organization to public instruction. In 1855 there were in the whole Republic but 211 schools with 5,433 pupils, now we have 1131 schools and 48,140 pupils; 691 are called federal schools, 209 are municipal schools, and 231 private establishments. The federal schools are provided for by the Government, and in the last year the expenditure was V264,877 80, part of which (V93,138 86) was supplied by a small tax on bills and receipts for sums over ten dollars, and collected under the form of stamps (*estampillas de escuelas*). Several young men are actually in this country, in order to acquire, at the expense of the Government of Venezuela, a perfect theoretical and practical training in the methods of modern teaching.

Printing establishments exist in all the principal towns of Venezuela. The best is that of Sr. F. T. de Aldrey at Caracas, which is furnished with all modern improvements of machinery.

The Government of Venezuela, desirous to augment the population of the country, is doing much for immigration. In 1875 arrived 3060 immigrants, causing the Government an expense of V128,386, so that every new inhabitant costs the National Treasury about V42. Two colonies have been established: one called Bolivar, (80 families), the other Guzman Blanco (1145 inhabitants).

Besides the construction of roads, Venezuela owes to her actual meritorious ruler a great many public buildings and other useful or ornamental works. Among the former we mention at Caracas the capitol or palace of the National Legislature, the university, several bridges, the new government house, the theatre, the church of S. Teresa, the aqueduct of Macarao, the new slaughter houses, the hospital, the new market, the masonic temple, the new cemetery, the Plaza Bolivar with the equestrian bronze statue of the great *Libertador*; the public walks on the hill formerly called El Calvario, where there has been erected, by the municipality of Caracas, a gigantic statue of General Guzman Blanco. Another statue of the President, on the square of the University, has been erected by order of Congress. It was modeled in Philadelphia by Mr. Baily, and executed in the foundries of Messrs. R. Wood & Co. The model is exhibited in the Art Gallery of the Centennial Exhibition. It would be too long to

give a complete list of what has been done in the other towns of the Republic; what we have mentioned is sufficient proof of the great and powerful impulse General Guzman Blanco has given to his country.

The Venezuelan people belong to the Roman Catholic Church. There is an Archbishop at Caracas, and three Bishops of Guayana Barquisimeto, and Mérida. The Government has the *jus patronatus*; it elects the ecclesiastical dignitaries, who afterwards are confirmed by the Pope. Every member of the clergy has to take the oath on the Constitution of the Republic. Religious liberty is fully established, and since January 1st, 1873, civil registers of births and matrimony are compulsory. There exist no convents in the country, the last nunneries having been closed by decree of May 5th, 1874. In general, it must be said that the Venezuelans have nothing of the fanaticism and intolerance which prevails in other parts of South America.

The country forms a Confederate Republic, comprising twenty States: Aragua, Apure, Barcelona, Barquisimeto, Bolivar, Carabobo, Cojedes, Coro, Cumaná, Guárico, Guayana, Maturin, Mérida, Margarita, Portuguesa, Táchira, Trujillo, Yaracuy, Zamora, and Zulia. Then there is the Federal District with the capital Caracas, and the three Territories Amazonas, Goajira and Colon. Aragua is officially called Guzman Blanco, Coro is Falcon, and Mérida is Guzman. The Constitution of May 17th, 1874, which in many respects is similar to that of the United States, establishes the autonomy and political equality of all the States, each having its President, Legislative body and Judicial administration. The Federal Government is composed of Congress and Executive power. The former has two houses, the Senate and the Chamber of Representatives, and meets every year on the 20th day of February. Each State elects two senators, and sends one representative for every 25,000 inhabitants, so that the Senate represents the autonomy of the States, and the Chamber of Representatives its population. Congress is thus composed of forty Senators and sixty-eight Representatives. The President is the head of the Executive Power; he is elected by the citizens of all the States by direct and public suffrage, but so that each State has one vote, according to the relative majority of its electors.

The President is assisted by seven Ministries: Interior and Justice,

Exterior, Finance, War and Navy, Public Works, *Fomento*,* and Public Credit. They present every year to Congress official reports on the different matters belonging to their sphere of action. Some of these publications are exhibited in the literary section of the Venezuelan department.

The coat of arms of Venezuela is divided in three fields. The right one is red with a sheaf of corn ears, the left one is yellow with arms and banners interwoven by laurels, the third one occupies the lower part, it is blue, and shows a wild horse of white color, the symbol of independence and liberty.

The Venezuela flag has three colors in horizontal stripes, yellow, blue and red.

The public debt of Venezuela is partly an interior one, partly an exterior one.

The first was on June 30th, 1875.....	V12,585,779	31
The second on the same day.....	49,241,165	22
Total.....	V61,826,944	53

The total amount of public income in 1874-75 was V5,324,676 16, the expenditure V5,100,560 79; 60 % of the revenue are employed for the administration of the country ; the remainder is destined to the amortization of public debt.

We shall finish this introductory chapter by adding a rapid sketch of the historical development of the country. The eastern coast of Venezuela and the Island of Margarita were discovered by Columbus in 1498, and in the following year the whole coast was visited by Ojeda and Vespucci. The principal objects of these earliest adventurous explorations were the pearl-fisheries near Margarita and the extraction of slaves from the main land. On entering the Lake of Maracaibo, Ojeda found an Indian village constructed on piles over the water, and hence he called the country after the famous city of the lagoons Venezuela, *i. e.* little Venice. The first settlement was made at Cumana, in 1520, which is consequently one of the oldest cities in the New World. In 1527, the city of Coro was founded by John Ampues; and shortly afterwards the Emperor Charles V gave the German house of the Welser of Augsburg the exclusive right to conquer and colonize the interior. This was not done, but the

**Fomento* may be rendered *Improvement* in this sense. The Ministry of *Fomento* takes charge of public schools, emigration, patents, statistics, etc.

country was ravaged everywhere by the so-called *conquistadores* or conquerors, who thought of nothing but gold and slaves. Then came the Spanish rule, and every reader of the classical work of Arthur Helps on the Spanish conquest in America will know what Spanish rule does mean. Settlements were formed at Carácas in 1567, but the indigenous race was nearly destroyed, and African slaves were introduced in great numbers. The dream of the Dorado dwindled away ; the country proved to be comparatively poor in precious minerals, and human activity was thus compelled to cultivate the soil and rear cattle in the plains. The commerce was monopolized by the *Compañía Guipuzcoana*, and the Colony was kept in the strictest dependence of the mother-country. Intellectual culture there was none, and the first printing press began to work in Carácas only in 1808, precisely at a time when the great political change was going to commence. In that very same year Napoleon having made his brother King of Spain, Venezuela declared (April 19th, 1810) for the ancient dynasty, proclaiming Ferdinand VII as the legitimate King of Spain and the Indies. This was the cause of hostilities between the Spanish rulers and the Colony, whilst in the meantime some spirits of more audacious flight conceived the idea of making the country altogether independent. So it was proclaimed the fifth day of July 1811, and now began a war which lasted about eleven years, presenting glorious examples of heroism and bravery, but also innumerable atrocities and scenes of horror. At the head of the abused sons of the Colony was Simon Bolívar, a man of great intelligence, an enthusiastic patriot and skillful leader. At his side fought men like Miranda, Paez, Sucre, Marín, Urdaneta, Ribas, Arismendi, and a great many others, whilst on the side of the Spaniards Monteverde, Boves, (one of the most sanguinary monsters this world has seen), Morillo, etc., made the greatest efforts to subdue the *rebels* and re-establish in the country the authority of the Bourbons. But this was impossible ; the battle of Carabobo (June 24th 1821,) destroyed the Spanish forces in Venezuela ; and soon after the new Republic of Colombia saw herself free from the Spanish yoke. The first Congress assembled in Cúcuta, (1821), and a Constitution was adopted. The Republic was called Colombia, embracing the three countries known to-day under the names of Venezuela, New Granada, and Ecuador. The union, however, did not last long. In 1830 the three parts separated, and formed each an independent country. The great Liberator, Simon Bolívar, died soon after in the neighborhood of Santa Marta.

In Venezuela, the landed aristocracy became the ruling party for a considerable time. Unfortunately it did next to nothing for the material and intellectual progress of the country. The people remained in ignorance, and had no influence whatever on public affairs. Such a state of things may last for some years; but it is one of the most natural consequences of human development that finally the great mass of the population will claim the right of having their share in the management of the commonwealth. And this has been achieved by the exertions and under the leadership of General Antonio Guzman Blanco, the actual President of the United States of Venezuela. It is his greatest glory to have thus conferred true citizenship to all his countrymen, who, gathered around their distinguished chief, dedicate now their whole energy to peaceful work and profitable enterprises, so that the prospect of the country is highly satisfactory, and the complete development of all its many treasures and resources a well-founded hope.

DESCRIPTIVE CATALOGUE.

I. MINERALS.

1. *Native Sulphur*, mixed with clay. From Los Azufrales, Carúpano, where it is very abundant.
2. *Native Copper*, from the mines of Aroa.
3. *Sulphuret of Copper*, mixed with gray and green oxide, from the same locality.
4. *Sulphuret of Copper*, Aroa.
- 5, 6, 7, 8. Samples of different copper ores (carbonate and silicate), from Aroa.
9. *Carbonate of Lime*, Aroa. This rock forms the gangue of the mine.

The mines of Aroa are situated in the State of Yaracui, at a distance of about fifty miles from the coast. They are worked by an English company, the ores being shipped to Europe, but nothing is known of the quantity of metal produced.

10. *Carbonate of Copper*, from El Pao, south of lake of Valencia. The deposit appears to be rich, but is not worked actually.
11. *Carbonate of Copper*, from El Carrizal, State Bolívar. The vein is tolerably rich, but has been abandoned.
12. *Lead and Copper Ore*, from the neighborhood of Carácas.
13. *Iron Ore*, Merida.
14. *Black Compact Limestone with Iron Pyrites*, from Rio Chico.
15. *Specular Iron*, Baruta, near Carácas. Contains about ninety per cent. of peroxide of iron.
16. *Specular Iron*, from the neighborhood of Puerto Cabello.
17. Rock containing iron and copper ores, Carácas.
18. Compact Limonite, Catia, near Carácas.
19. Prismatic Limonite, Montalban, St. Carabobo.
20. *Hæmatite*, Valley of Guarúmen (Guzman Blanco), a locality notable for its hot springs, temperature 117° , in ferruginous sand-stone.

21. *Bog Iron Ore*, from the same place.
22. *Limonite*, from Montalban.
23. Compact black *Limestone* with Carbonate of Iron, Carácas.
24. *Iron Ochre*, Carácas.
25. *Gold Quartz*, from Guayana.
26. Argentiferous Galena, Carúpano.
27. Another sample of the same. *Ibid.*
28. Galena, Tipe, near Carácas.
29. id., Los Teques, Bolívar.
- 30, 31. Sandstone, from the coal mines of Naricual, Barcelona.
- 32, 33, 34. Samples of *Coal*, Naricual, Barcelona. The deposit belongs to the family of Monágas, but is not worked.
35. *Coal*, from the neighborhood of Carúpano.
36. *Coal*, from Cúpira, near Rio Chico. The mine is situated in a place called La Soledad, on the left bank of the river of Chupáquira. The coal is said to form a superficial layer, so that the digging would be very easy.
37. *Coal*, from Naiguatá, east of La Guaira.
38. *Coal*, from Caujarao, near Coro.
39. *Coal*, from Cumarebo, Coro.
40. *Coal*, from Curamichate, Coro. Discovered 1872, and reported to form a seam of from 2 to 2.5 meters thickness. It is semi-bituminous, lighter than Cardiff, burns with a long, white flame, and leaves but little ashes (3.34 %). Dr. Fleck, of Leipzig, found its composition : Carbon 61.49, hydrogen 5.36 (1.68 of which are free), oxygen 29.81, water 38.54. The coal gives 54.4 % of coke. Its calorific effect (carbon \times 8000 + free hydrogen \times 34,500) is therefore 548155, that of good Cardiff being 728215, so that one hundred tons of the latter are equal to 132.8 tons of Curamichate coal. (The foregoing statements are taken from a pamphlet published in German, under the title : "Die Auffindung von Kohlen an der Nordküste von Südamerika in den Vereinigten Staaten von Venezuela, vom Berg-Ingenieur G. A. Hübel, Dresden, 1872, 14 pp., 4°.")
41. *Coal*, from the river Tocuyo.
42. *Coal*, from Tulé, Perijá, Maracaibo. The sample was forwarded by Dr. G. F. Mendez, of Maracaibo, it appears to be of rather good quality, and the deposit is said to be of some extension.
43. *Compact Lignite*, banks of Apure.
44. *Asphaltum*, from a place called El Tabacal, near Mérida.
45. *Diorite* (?), from El Gran Roque, the principal island of the group called Los Roques, north of La Guaira.

46. *Phosphate of Alumina*, from the same place.
47. *Urao*, or Sesquicarbonate of Soda, from the bottom of a small lake near Lagunilla, twenty-five miles to the west of Mérida, eight hundred and fifty metres over the sea. The *laguna* is about one thousand metres long, three hundred broad, and from one to two metres deep. Part of it is already dry, another is covered with rushes and cat-tail flags. Urao is used in the country for preparing the *chimó*.
48. *Red Jasper*, from Upata, Guayana.
49. *Amphibolitic Rock*, Carácas.
50. *Talcous Clay*, Las Lagunetas, on the old road from Carácas to La Victoria.
51. *White Gneiss*, mountains of Carácas.
52. *Rock Crystal*, with acicular crystals of Rutile, from Mont-alban, Carabobo.
53. *Rock Crystal*, said to have been found at Baruta, near Carácas. This very notable specimen belongs to the *Museo Nacional* in Carácas, and is thirty-eight centimetres long, and twelve thick.
54. *Feldspar*, Antímano, near Carácas.
55. *Sandstone*, from the hot springs of Guarúmen.
56. *Coast Limestone*, from the island of Tortuga. It is an amorphous carbonate of lime, containing occasional fossil shells and corals, all of living species. The same formation is found on the Dutch island of Curaçao (W. M. Gabb, in Amer. Journ. of Science and Arts, 1873, v. 382).
57. *Concretionary Limestone*, Carácas.
58. Hard compact Limestone, S. Esteban, near Puerto Cabello.
59. Metamorphised Limestone with Mica, Carácas.
60. Calcite, crystallized, Carácas.
61. Petrified Wood, river Catuche, Carácas.
62. White Marble, S. Esteban, Puerto Cabello.
63. Limestone, S. Juan de los Morros.
64. Chalk, river Guárico.
65. Phosphate of Lime, Island Tortuga.
66. Shell Marble, banks of river Montaban, Mérida.
67. Ferruginous Sandstone, Hot Springs of Guarúmen.
68. Micaslate, Carácas,
69. Amphibolite, Maiquetia, near La Guaira.
70. Alumslate, Tocuyo.
71. Talcous Slate, river Tuy.
72. Arragonite, Carácas.

73. Micaslate, Upata, Guyana.
 74. Steatite, or Soapstone, La Guaira.
 75. Fibrous Asbestus, with green steatite and micaslate. Carácas.
 76. Amphibolite with garnets, Carácas.
 77. Gneiss with garnets. Very common in the mountains of Carácas, where it is quarried and used as flat-stone for pathways, &c.
 78. Calcareous Tuff, Guaréñas, east of Carácas.
 79. Micaschist, with garnets, Carache, Trujillo.
 80. Petrified Alcornoque wood, Barcelona.
 81. Specimens of gold ore from the mines of "The Orinoco Exploring and Mining Company" and "South American Mining Company" in Guayana (office No. 426 Walnut street, Philadelphia).
 82. Samples of gold ore and coal from different places.

The gold mining industry of Venezuela is attracting great and deserved attention. The richest mines are situated in the State of Guayana, near the river Yuruary and the rivulets and ravines of Iguana, Chile, and Potosí, not far from Upata and Guasipati. There are several mining concerns, as may be seen on the manuscript map exhibited under No. 82^a. The principal companies now at work or preparing for work are: The Orinoco Exploring and Mining Company (office as stated above), which is working since many years twenty-five stamps with satisfactory results. The "Compañía minera del Callao. It works since May, 1875, twenty-five crushing stamps, which prepared 11,859 tons of ore, giving 31,278.33 ounces of gold, at \$24.25 to \$24.50 each, so that the gross produce was \$762,160. The expenses in the same period were \$397,970, leaving a clear benefit of \$364,190. The Company has a capital of \$322,000, no debts, and pays about 100 % to the shareholders.

The "Compañía minera de Potosí" which has invested a very large capital in roads, railways, etc., is now beginning to obtain satisfactory results. It works twenty stamps.

The "New York and South America Mining Company" with twenty stamps.

The "Compañía minera del Caratal," twelve stamps.

The "Gewerkschaft Hansa," twenty stamps.

The "Compañía minera del Chile," ten stamps.

The "New York and Mocupio Mining Company," twelve stamps.

The total produce of the whole mining district is not exactly known.

83. Petroleum from the district Rubio, State of Táchira. The oil springs are situated at the foot of a low ridge of hills, and form a small

rivulet called *La Alquitran* (from *alquitran*, tar). The oil is not used for illuminating purposes, on account of the deficiency of roads in the neighborhood of the spring, and the small quantity it has hitherto yielded.

II. CATTLE FARMING AND ITS PRODUCTS.

POULTRY. BEE-KEEPING.

Although it was impossible to send samples of live stock from Venezuela to the Centennial Exhibition, it will not be out of the place to insert here a short description of our system of cattle-farming.

We have stated already that this industry has its principal seat in the *Llanos* or plains of the interior. We cannot give any statistical data referring to the number of animals in those regions, and rough estimates would be of no interest.

The Venezuelan *horse* is not a particular breed, but it is a tolerable good animal, well shaped and of great resistance. This latter quality is especially noted in the Goagira horses, which come from Maracaibo.

The *mule* is the most important saddle-beast, on account of the great security of its footing in mountain roads. The finest mules are reared in the States of Coro and Barquisimeto, and first rate animals cost \$500 and even more.

The most valuable beast of burden is the *donkey*, and is found all over the country in an almost countless number.

There are in the Llanos large herds of horned cattle. The first cattle was introduced by Cristobal Rodriguez in 1548. The farming establishments are called *hatos*, and are situated at considerable distances from each other.

These Llanos are a most peculiar country. The traveler descending from the last slopes of the coast range, imagines to behold before his eyes the sea. The more he approaches, the more striking grows the illusion, as the boundless plains apparently heave and fall like the swelling surface of the ocean. Not less peculiar is the character of the inhabitants, generally called *Llaneros*. This race is endowed with a physique admirably adapted to endure the fatigues of a life beset with dangers and hardships. Cast upon a wild plain, the domain of savage beasts and poisonous reptiles, their lot has been to pass all their life in a perpetual struggle for existence, not only with the primitive possessors of the land, but with the elements themselves, often as fierce as they are grand. Like the

Arab, the Llanero considers his horse his best friend on earth; it is therefore not all surprising to hear the bard (and all Llaneros are poets more or less) exclaim, after the loss of both his wife and valued horse:

Mi muger y mi caballo
Se me murieron á un tiempo;
Que muger, ni que demonio,
Mi caballo es loque siento.

(My wife and my valued horse
Died both at the same time;
To the devil with my wife;
For my horse do I repine.)

Few people in the world are better riders than the Llaneros of Venezuela, if we except perhaps the Gauchos of Buenos Ayres. When sufficiently strong, the young Llanero is taken to the *majada* or large cattle pen, and there hoisted upon the bare back of a fierce young bull. With his face turned towards the animal's tail, which he holds in lieu of bridle, and his legs twisted around the neck of his antagonist, he is whirled round and round at a furious rate, until, by a dexterous twist of the animal's tail, while he jumps off its back, he succeeds in overturning the bull.

In proportion as he grows older and stronger, a more manly, but also more dangerous amusement is afforded him with the breaking in of wild colts. Here commences the public life of the Llanero, his education is now considered complete. He lives now almost continually on his saddle, which is of a peculiar shape. His feet hang in stirrups with the large toes only. His sword differs little from that used by Spaniards of the middle ages, the hilt being surmounted by a guard in the shape of a reversed cup, and the blade is made with two edges. Most of these swords are mounted in silver, the same as the accompanying dagger; and such is the passion among Llaneros for glittering weapons, that they would sooner dispense with a house than with either of these expensive commodities. The lance comes next in importance, and in their hands is quite a formidable weapon. As an element of war, the *lanza llanera* has become celebrated in the country, having rendered the cause of Independence the most effectual service in repelling the attacks of the sanguinary hosts sent by Spain against the indomitable *rebels* of Columbia. The *trabuco* or blunderbuss, too, is held in great estimation as a weapon of aggression, and nobody thinks of traveling in that desert without one of these wide-mouthed spitfires by his side. Last

but not least, the Llanero is armed with his *lazo*, a long cord made of twisted cowhide, with a running noose at one end. Such is his dexterity in throwing it through the air, that unerringly the noose falls over the horns of the chased bull, or twines round the feet of the half wild horse.

The Llanero is of middle size and powerful constitution. His hair is short, the head small and bony. The forehead is large, and the deep black eyes sparkle like fiery coals. The upper part of his body is well built, but the legs acquire soon a curved appearance, in consequence of continual equestrian life. His dress consists of cotton pantaloons reaching as far down as the knees, a blouse of the same stuff, kept round his waist by a leather girdle in which he wears constantly a large, broad knife, called *Machete*. On his shoulders he carries the *cobija*, a large square piece of red and blue woolen stuff, with a slit in the middle, through which it can be drawn over the head, serving then as a very excellent riding-cloak. The feet are either bare, or protected by leather sandals; on the head the Llanero uses the *sombrero de cogollo*, a hat made with the younger leaves of tree-like grasses. (See for more particulars on this subject the interesting volume published by *Ramon Paez*, under the title, "Wild Scenes in South America; or, Life in the Llanos of Venezuela." New York, 1862.)

The dwelling-place of the Llanero is a hut, thatched with the large leaves of the *Palma redonda* (*Copernicia tectorum* Mart.). A partition made of wicker-work divides the hut in two unequal departments, the smaller one being reserved for the women. The larger room is furnished with half a dozen cow-hides, a tiger-skin, and some rustic seats made of the stems of *Guasdua*, a tall bamboo-like grass. At some distance there is the *corral*, or cattle-pen, into which the animals are driven in order to count and mark them. This is done every year, and called *Rodeo*. The calves follow of course the cows, and thus it is easily found out to whom they belong. The marks are either the initials of the owners' names, or some peculiar signs. They must be deposited at the office of the judicial authority, and serve as proofs in case of run-away or stolen animals.

The owner of the farm does not always live in the *hato*, which is only inhabited by his servants. Ten or twelve men take charge of several thousand heads of cattle. The women do the minor domestic work, and cultivate some Indian corn or *yuca* (cassave-plants) around the huts.

Much cattle is sent from the Llanos eastward to Ciudad Bolívar, west to the Táchira and New Granada, and north to Carabobo and Bolívar.

Cheese-making is one of the principal occupations in the cattle-farm. There are two kinds of cheese : *queso de sincho* and *queso de mano*. Of both there were samples in the Venezuelan department, but as they got spoiled, it was necessary to take them away. The *queso de sincho* is white, and when fresh of an agreeable sweetish taste. It is pressed in a kind of wicker-work called *sincho*, and left then to dry in the air. One hundred bottles of milk (10 bottles = 7 litres) yield 25 lb. cheese, value from 6 to 7 dollars. A cow gives daily 5 or 6 bottles of milk, during eight months in the year, which makes 1200 bottles a year. A farm with 200 cows will therefore produce 240,000 bottles of milk, or 600 quintals of cheese, value 12,000 to 14,000 dollars. In the rainy season, when the pasture is abundant, a quintal of cheese costs in the *hato* 20 dollars ; in the dry season the price rises to 80 dollars. In Carácas prices range from 37 to 50 dollars a quintal. The cheeses are of prismatic shape, and weigh about forty to fifty pounds. The *queso de mano* is smaller and round.

Milk production is a very remunerative business in the neighborhood of the towns. At Carácas the bottle of milk cost actually twenty cents Venezuelan currency. Good milch-cows of excellent breeds have been brought repeatedly from England and the United States, but they fall off very soon, on account of the heat and the deficiency of soft, sweet pasture grasses.

Sheep do not thrive well in most parts of Venezuela, and there are nowhere considerable numbers. The wool, however, is generally fine and long, and it would be well worth the trouble to make further essays of acclimatization. There is under No.

84, a sample of sheep-skin of middling quality.

Hogs are reared in great numbers, but their meat has not the same savory taste as that of northern animals.

Goats are very abundant in the hot hilly country, where the soil is covered by a great variety of aromatic shrubs. The best goats have been brought from the Canary Islands. On the Carácas Islands, north of Cumaná, a mongrel of deer and goat is reported to exist ; mongrels of sheep and goat are not uncommon.

85 are Goat-skins, of which there is a pretty large export from Venezuela. In 1873-4 nearly one hundred thousand were shipped from the different ports ; price \$22—\$25 per quintal.

Here we must add two articles obtained from wild animals :

86. *Deer-skins* from *Cervus rufus*, Ill., and *Cervus simplicornis* F. Cuv., are likewise an article of exportation ; price \$40-\$50 per quintal.

87. *Tiger-skins*, from *Felis Onza* L. Good skins cost in Venezuela about fifteen dollars apiece.

88. *Sole Leather*, exhibited by Serrano Hermanos, Carácas. The establishment of these gentlemen, situated at Catia, near Carácas, prepares two kinds of leather, white and red colored. The first color is obtained by using dividive as tanning material (See hereafter, No. 100), the second by using mangrove bark (See No. 99). The price of leather is about \$6-\$7 half a hide.

Formerly a considerable quantity of raw hides was annually shipped to the United States and Germany ; but now the tanning industry has progressed much in Venezuela, so that the export of hides has diminished very much; price of hides \$16-\$20 per quintal. The firm of Serrano Hermanos obtained a second class medal for their leather at the Chili Exhibition last year.

Poultry. Hens, ducks, turkeys, pigeons, are the principal kinds of poultry in Venezuela. Geese are rare and do not breed. The ducks thrive very well without water. As curiosities hocco-hens and guacharacas (*Crax Daubentonii* Gray and *Penelope argyrotis* Scl.) are kept in some houses.

Pisciculture, the youngest branch of the food industry, has not yet been introduced into Venezuela, but the sea and the rivers abound with excellent fish.

Bee-keeping. The great variety of plants with sweet-scented blossoms throughout the whole year, makes bee-keeping an easy and productive affair for the husbandman. Dr. F. Bolet, Petare, was the first to introduce the Ligurian bee from the Canary Islands, about thirty years ago. It has now spread over the whole country, but Sr. Bolet is still to-day the principal bee-keeper in Venezuela ; he owns about eight hundred hives, and produces a considerable quantity of honey and wax. Under No.

89. There are samples of *honey* ;

90. *Unbleached wax*, and

91. *Bleached wax*, exhibited by said gentleman.

92. *Black wax*, called *Cera virgen* in the country. It is obtained from a wild bee (*Melipona favosa* Lam.). It cannot be bleached. The honey of this insect is likewise dark-colored, and is said to be intoxicating before boiling it once or twice. Price of honey twenty

cents a litre; yellow wax forty cents a pound; white wax seventy cents; black wax seventy cents, but it cannot always be procured.

93. *Honey Wine*, prepared by Dr. F. Bolet; price thirty cents a pint.

III. FOREST PRODUCTS.

a. WOODS AND OTHER BUILDING MATERIAL.

Tendom sampled - no representatives in Hu Wood Co., Iquitos.
A great part of the country is covered by virgin forest, where there is an abundance of precious woods for any purpose of human industry. They are, however, not yet well known, and it will, therefore, be sufficient to give here the list of the most common ones, which are exhibited in our department. *R.H.M.*

93. Two frames with samples of wood.

1. *Acapro*. *Tecoma leucoxylon* Mart. (?)
2. *Aceite*. *Copaifera Jacquinii* Desf.
3. *Acucuri*. *Lonchocarpus latifolius* Kth.
4. *Aguacate*. *Persea gratissima* Gaertn.
5. *Aguacate cimarron*. *Persea laevigata* HBK. var. *cærulea*.
6. *Alcornoque*. *Bowdichia virgilioides* HBK.
7. *Algarrobo*. *Hymenæa courbaril* HBK.
8. *Algarrobo*. The dark heart-wood.
9. *Almendro*. *Geoffræa superba* HBK.
10. *Almendron*. *Terminalia Catappa* L.
11. *Amarillo comun*. ?
12. *Amarillo yema de huevo* (i. e. yolk-colored) *Aspidosperma Vargasii* DC.
13. *Angelino*. *Homalium racemosum* Jacq.
14. *id.*, the dark heart-wood.
15. *Apamate* (from Cumanacoa). ?
16. *id.* (from the coast), *Tabebuya* spec., resembling *T. affinis* DC.
17. *Atata* (root). ?
18. *Araguaney* (heart-wood). *Tecoma spectabilis* Planch.
19. *id.* (heart-wood and sap-wood).
20. *Birote*. ?
21. *Bosua*. *Zanthoxylum Ochroxylum* DC.
22. *Botoncillo*. *Conocarpus erectus* L.
23. *Cabimbo* (Cumaná). ?
24. *Cacaito*. ?
25. *Cacaobillo* (root). ?
26. *Candelero*. *Oreopanax capitata* Seem.

27. *Cuñafistola*. *Cassia Fistula* L.
28. *Caoba* from the coast).
29. *id.* (from river Tuy).
30. *id. criollo*. All local varieties of *Swietenia Mahagoni* L., a tree furnishing the well known Mahogany wood of commerce.
31. *Caobano*. ?
32. *Caobilla* (from Aragua). ?
33. *Cartan*. *Centrolobium robustum* Benth.
34. *Cedro* (from Cumaná).
35. *Cedro amargo* (Bitter Cedar-wood). *Cedrela odorata* L.
36. *Cedrillo Aceits* (San Pedro). ?
37. *id. amarillo* (*id.*). ?
38. *id. blanco* (*id.*). ?
39. *id. manteca* (*id.*). ?
40. *id. negro* (*id.*). ?
41. *Cochino* (*i. e.* pig) *Escallonea floribunda* HBK. The fresh wood exhales a smell like pigs, which accounts for the name. It is also called *jarillo*.
42. *Cejobo*. ?
43. *Curari*. ?
44. *Curarire*. ?
45. *Charo*. *Byrsinime coriacea* DC.
46. *Dacagua*. ?
47. *Dividivis*. *Lebidibia coriarea* Schlecht (the yellow sap-wood).
48. *id.* (the dark heart-wood).
49. *Durote*. ?
50. *Florecillo*. ?
51. *Gateado veteado* (*i. e.* veined G.).
52. *id. negro*. Both varieties of a species of *Brosimum*.
53. *id.* (from Cumanacoa). ?
54. *Granadillo*. *Bucida capitata* Vahl.
55. *Guácimo*. *Guazuma ulmifolia* L.
56. *Guácimo de montaña*. *Luhea* spec.
57. *Guatamare*. *Myrospermum frutescens* Jacq.
58. *Guayabo dulce*. *Psidium* Guava Raddi.
59. *Guayacan*. *Guayacum sanctum* L.
60. *Guayabillo*. ?
61. *Helecho*. *Hemitelia speciosa* Kaulf.
62. *Hojita ancha* (*i. e.* Broad-leaved). ?
63. *Huesito*. *Prockia crucis* L.
64. *Javillo*. *Hura crepitans* L.

65. *Laurel amarillo*, also called *Palo de Balsamo* (Carúpano).
 66. *Laurel* (Cumanacoa). ?
 67. *Maya*. Freziera spec.
 68. *Macanilla*. Guilielma speciosa Mart.
 69. *Mahomo*. Coursetia spec.
 70. *Mangle colorado* (*i. e.* red Mangrove-wood). Rhizophora
 Mangle L.
 71. *Marfilete amarillo*. ?
 72. *Maria*. Triplaris americana L.
 73. *Mora*. Maclura tinctoria Don.
 74. *Nazareno*. Hymenæa floribunda Kth.
 75. *Nogal*. Juglans insularum Griseb.
 76. *Orejon*. Croton spec.
 77. *Palma redonda*. Copernicia tectorum Mart.
 78. *Palo amarillo* (*i. e.* yellow wood, from Cumaná). ?
 79. *Paraguatan*. Condaminea tinctoria DC.
 80. *Parapara*. Sapindus saponaria L.
 81. *Pardillo*. Cordia gerascanthus Jarg.
 82. *id. negro*. ?
 83. *Pinabete*. Podocarpus coriaceus Rich.
 84. *Pui*. Tecoma spec.
 85. *Purvio* (State of Maturín). Mimusops globosa Griseb.
 86. *Quiebrahacha* (*i. e.* hatchet-breaker). Cæsalpinia punctata
 Willd.
 87. *Quigua*. ?
 88. *Quina*. Cinchona Moritziana Krst.
 89. *Roble blanco* (*i. e.* white oak). Platymiscium polystachyum
 Benth.
 90. *Roble colorado* (*i. e.* red oak). Tecoma pentaphylla DC.
 91. *Sangre de drago*. Pterocarpus Draco L.
 92. *Sasafras*. Nectandra cymbarum Nees.
 93. *Sereipo*. Myrosperum secundum Kl.
 94. *Tiamo*. Acacia paniculata Willd.
 95. *Vera oscura* (*i. e.* dark).
 96. *id. verde* (*i. e.* green).
 97. *id. veiteado* (*i. e.* veined), varieties of Guayacum arboreum DC.
 98. *Yagüero* (also called *carnes asada*, *i. e.* roasted meat). Myrsine
 spec.

We beg leave to call the attention of visitors to a small box made of different woods from Maracaibo (No. 128), as well as to the large

box which contains the allegoric representation of Washington, and is made of seven different kinds of wood.

The principal lumber-dealers are Mr. R. Polly, Puerta Cabello, Messrs. Lemoine & Piton, La Guaira and Carácas, and Mr. Charles Benitz, Carácas.

94. A bundle of *walking sticks*, canes, etc., most of them species of Croton, Erythroxylon, Vallesia, and Coffea. Price per hundred, 5 to 6 dollars, at Carácas.

95. Pieces of *Caña amarga*, a tree-like grass (the Arundo saccharoides Gris.) which grows very abundantly on the banks of the rivers and other damp places. It is used as roofing material. The canes are from 20 to 25 feet long. Price per hundred 4 to 5 dollars.

96. *Bejuco de cadena* (*i. e.* chain-creeper), the twining stems of Bauhinia (Caulotretus) splendens, a common plant in the hot and damp forests. The stems are extremely flexible and tough, so that they can be used as cords, being more durable than iron nails, which in the damp atmosphere rust very soon and give way.

97. *Cable de Rio Negro*, made with the leaf-fibres of Attalea funifera Mart., a palm called in Venezuela *Chiquechique*. It is the Piassaba-fibre of the Brazil. These cables are about 200 feet long, price for inch of circumference. At La Guira the inch costs actually 85 to 90 cents, but it rises sometimes as high as \$1.20 to \$1.40. At Ciudad Bolívar they are much cheaper. They are very durable, and so light that they swim on water.

B. BARKS AND FRUITS USED FOR TANNING.

98. Bark of *Curtidor* (Weinmannia glabra L.), a tree growing in the higher mountains.

99. *Mangle-Bark* (Rhizophera Mangle L.), common on all tropical coasts. Price at La Guaira \$16 per ton.

100. *Dividive*, the pods of a leguminous tree, known to botanists under the name of Lebidibia coriaria Schl. They are very mucilaginous, and contain besides a considerable percentage of tannic acid. Price at La Guaira \$1.75 to \$2.00 per quintal. The Island of Margarita and Maracaibo export much of this substance.

101. *Bark of Uva de Playa* (Sea-side Grape, Coccoloba uvifera L.). Yields Kino occidentale, which contains about 75 per cent. of Kinovic acid.

102. *Tamarind Bark* (Tamarindus occidentalis L.). The following barks are also used for tanning : *Mangle blanco* or white Mangle (*Laguncularia racemosa* Gr.), *Mangle prieto* or black Mangle

(*Avicennia tomentosa* Jacq.). Both are very common on the Caribbean coast, and on the Islands of the "Territorio de Colon."

C. FIBRES AND VEGETABLE SILK.

103. *Marima or Estopa de Rio Negro*. This is the inner bark of an unknown tree, growing on the banks of upper Orinoco and Rio Negro. The Indians use it in many ways.

104. *Cocuiza*, fibres from the leaves of *Fourcroya gigantea* Vent., a species of Jeniquen. They are very strong, and used for cordage and gunny-bags. It resembles the sisal-hemp so closely, that for further information we refer our readers to a very comprehensive article on this substance in the Report of the Commissioner of Agriculture for 1869 (Washingt. 1870, page 257, seqq.).

105. The same dyed with aniline colors.

106. *Barba de Palo* (i. e. wood-beard, *Tillandsia usneoides* L., a bromeliaceous plant, hanging like moss from the branches of trees). It is also growing in this country, and used by upholsterers.

107. *Wool of Lano* (*Ochroma Lagopus* Lo.). This and other vegetable silks are unfortunately of very little practical value, the fibre being very short, and so smooth that it does not allow of being wrought into felt. Other Venezuelan plants yielding vegetable silk are : *Cochlospermum hibiscoides* HBK. (called *carnestolendas*, i. e. Lent, the large yellow flowers unclosing about that time), *Asclepias curassavica* L. (*Platanillo*), *Calotropis gigantea* RBr. (Algodon de seda, completely naturalized, though an exotic plant), *Typha angustifolia* L. (*Enea*, flag-tail, common in swamps), even *flax* grows well in some parts of the country. *Ramee* has given no good result.

108. *Majaguillo*, the fibrous bark of *Muntingia Calabura* L.

Excellent fibres may be obtained from the leaves of a great many bromeliaceous plants (pine-apple tribe), and from the stems of certain mallows, as *Sida rhombifolia* L., called *Escoba babosa* or slimy broom in Venezuela.

The cotton will be mentioned further on.

D. MEDICAL PRODUCTS OF THE FOREST, DYE-STUFFS.

109. *Guácimo bark* (*Guazuma tomentosa* Kth. and G. *ulmifolia* Lam.). Mucilaginous and refreshing.

110. *Simaruba bark* (*Simaruba amara* Aubl.). Guayana.

111. *Raiz de Mato* (*Aristolochia barbata* Jarg., and A. *dictyantha*

Dch.; Dr. Hooker considers both species identical; see Botan. Mag. plate 5869). Aromatic. *Mato* is the name of a large lizard (Salvator Teguixin, Dum. Bibr.). People believe that this reptile eats the root after having been bitten by a venomous snake, therefore the name.

112. *Cebadilla*. Seeds of *Asagrrea officinalis* Lindl. The plant is very common on the grassy slopes of the coast range, but it is much to be doubted whether it be there indigenous. There were shipped from La Guaira and Puerto Cabello about 3000 quintals annually to Hamburg and the United States; this article is now, however, very dull.

113. *Toro bark* (*Croton Malambo* Krst.). Aromatic.

114. *Rosa de Montaña* (*Brownnea grandiceps* Jarg.). Astringent and haemostatic.

115. *Amargoso bark* (*Vallesia hypoglaucia* Ernst). Bitter and tonic.

116. *Canafistola* (*Cassia fistula* L.). Slightly purgative.

117. *Guaco*, stems and leaves of several species of *Mikania*, especially *M. gonoclada* D. C., much prized as a blood-purifier and antidote against the poison of snakes.

118. *Ricinus-Oil*. The well known plant which yields this oil is one of the most common plants in Venezuela, and called *Tártago*. It is, however, mostly imported from Europe, the preparation in the country being too expensive.

119. *Balsamum Copaiwas* (*Copaifera Jacquinii* Desf.) from Maracaibo.

120. The same, from Barcelona.

121. The same, from Maturin.

122. The same, from Ciudad Bolivar. About forty thousand gallons are exported annually, at the price of four to five dollars each.

123. *Milk of the Cowtree* (*Brosimum Galactodendron* Don). This is one of the most interesting plants of our Venezuelan flora. The tree belongs to the same family as the bread-fruit tree; when tapped a thick milky fluid runs out abundantly, and this may be taken like milk. It ferments very soon, but contains in fresh condition about fifty-seven per cent. water, thirty-eight per cent. wax, and five per cent. gum and sugar. It has lately been recommended as a remedy in dysentery. The tree grows in hot forests.

124. *Crab-Oil* (from *Carapa guianensis* Aubh). Contains palmitic acid, and is of semi-fluid consistence, but liquifies completely at 181°.

125. *Zarzaparrilla*, the rhizoms or underground stems of a species of *Smilax*. The export was formerly about fifteen hundred quintals annually to Germany and the United States, but has fallen off very much. The sample exhibited is in the original shape of package.

126. *Zarzaparrilla Extract*, prepared by Guillermo Stürup & Co., Carácas.

127. The same, prepared by J. Braun & Co., Carácas.

128. The same, prepared by G. Sanchez, Maracaibo.

129. *Algarrobo Resin* (*Hymenaea Courbaril L.*). It is found in considerable quantities, sometimes in semi-fossil state. A very good copal can be prepared with it.

130. *Balata* (*Mimusops globosa Griseb.*) a kind of gutta percha, from the State of Maturin.

131. *Curucay*, a resin obtained from *Calophyllum Calaba Jacq.*

132. *Caraña*, resin of *Icica Carana HBK.*

133. *Tacamahaca*, the resin of *Icica Tacamahaca Kth.* These resins are used in medicine for making ointments.

134. *Paraman*, resin of *Moronobea coccinea Aubl.*, used as tar.

135. *Bálsamo de Merel* (*Anacardium occidentale L.*). The fruits of this tree are exhibited in our collection under No. 316. The large fleshy part is the stalk or peduncle; the fruit is the seed-like body on its end. The latter contains in its mesocarp a highly caustic fluid, in which has been found cardol and a peculiar acid. This fluid has been recommended as a remedy in lepra, used externally, but without any good reason.

136. *Gingelly seeds*. (*Sesamum indicum L.*)

137. *Gingelly oil*, obtained from the same.

138. *Ordinary cocos-oil*, from the fruits of the *cocos-palm*.

139. *Refined cocos-oil*, for medical use.

140. *Ground-nuts*. (*Arachis hypogaea L.*)

141. *Ground-nut oil*.

142. *Secua fruits* (*Feuillea scandens L.*),

143. *Secua seeds*, and

144. *Secua oil*. The *Secua* is a cucurbitaceous plant, and contains in its seeds about thirty per cent. of an oil which is used for protecting steel-ware against rust.

145. Fruits of a tree called *Cabeza de Negro*, or negro head. The seeds are enveloped by an oily arillus.

146. *Seje oil*, from a species of palm-trees belonging to the genus *Oenocarpus*. Recommended against consumption. (?)

147. *Borria bark* (*Zanthoxylum ochroxylum* DC.). Contains berberidine and yields therefore a yellow color.
148. *Orrilla* (*Roccella tinctoria* Ag.), a lichen which grows on the islands off the Caribbean coast, used for preparing litmus.
149. *Añil* (*Indigofera tinctoria* L.). Formerly Indigo was one of the great staple products of Venezuela, but it is now not any longer exported, the cultivation is very limited (neighborhood of San Sebastian), and has been replaced by the more lucrative raising of coffee.
150. *Chica*, a red pigment prepared by the Indians of the Orinoco from the leaves of the *Bignonia Chica* HBK, which are left to macerate for some time, when the coloring substance settles on the bottom of the vessels. It has been said to be a remedy in erysipelas.
151. *Cúrcuma* (*Curcuma longa* L.), cultivated. Yields a yellow color.
152. *Cochineal* (*Coccus Cacti* h.), an insect living on several species of *Opuntia* or Indian figs. It is used for making the fine red color called carmine.
153. *Arnotto* (*Bixa Orellana* L.), a well known dye-stuff. The tree is common in Venezuela.
154. *Estropajo*, the fruit of a cucurbitaceous plant (*Luffa cylindrica* L.) of the fibrous interior little fancy articles are made.
155. *Algalias*, the aromatic seeds of *Abelmoschus moschatus*.
156. *Fresa de Burro*, i. e. Donkey's fruit (*Xylopia longifolia* A. DC.) Aromatic.
157. *Ginger* (*Zingiber officinale* Rosc.) Cultivated.
158. *Pepas de Cola* (*Cola acuminata* RBr.) Cultivated, but not common. The seeds are used in liver complaints.
159. *Sasafras bark* (*Nectandra cymbarum* HBK.) very aromatic.
160. *Sasafras oil*, obtained from the foregoing bark.
161. *Cinchona bark*, Maracaibo (*Chiachona tucuyensis* Karst.).
162. *id.*, Carayaca (*Cinch. Moritziana* Krst.)
163. *id.*, Orituco (*Cinch. Cordifolia* var. *rotundifolia* Wedd.). These barks contain very small quantities of alkaloids. In 1872-1873 the export was twenty-six thousand three hundred and thirty-one kilogr., nearly all to the United States.
164. *Sarrapia or Tonca Beans* (*Dipteryx odorata* Willd.), Guayana. The seeds are very aromatic; in 1872-1873 the export from Ciudad Bolivar was sixty-six thousand six hundred and sixty-three kilogr.
165. *Bejuco de Santa María* (*Aristolochia maxima* Jacq.), aromatic and antispasmodic.

166. *Bejuco Moreno*, pieces of the stem of a bignoniacous climber, probably belonging to the genus *Anisostichus*. Antisiphilitic.
167. *Gengibrillo*, (*Elionurus tripsacoides* HBK.), rhizoms of a grass, aromatic.
168. *Copaiva Bark* (*Copaifera Jacquinii* Desf.). Antisyphilitic.
169. *Cachicamo Root* (*Echites symphytocarpa* Mey. and E. *subsagittata* R. P.). The infusion is reported to be a remedy in chronic rheumatism.
170. *Quassia wood* (*Quassia amara* L.), Guayana. Bitter and somewhat tonic.
172. *Cobalonga*, seeds of *Nectandra Puchury major* Nees. Guayana, Orinoco, South of Barquisimeto. Aromatic.
173. *Sereipo* (*Myrospermum frutescens* Jacq.).
174. *id.* (*Myrospermum secundum* Kunth.). The seed is in both species enveloped by a balsamic substance, which is employed in medicine.
175. *Ojo de Zamuro*, i. e. eye of carrion vulture, seeds of *Macuna pruriens* DC. The alcoholic extract is said to be good against asthma.
176. *Escozonera* (*Craniolaria annua* Jacq.). One of the most popular blood-purifying remedies.
177. *Espadilla* (*Crotalaria stipularis* Desf.). Sudorific.
178. *Galicosa* (*Latreillea dicarpa* Toro) Antisiphilitic.
179. *Curare*. A poison prepared by the Indians of the Orinoco, in which they dip the point of their arrows. Humboldt and Schomburgh have described the preparation from the milky juice of *Strychnos toxifera* R. Schomb., and Claude Bernard has studied its physiological effect, which consists in a rapid and total destruction of the activity of the motor nerves, without there being any direct influence on the sensorial organs.
180. *Guaica*, stem of a tall climbing plant (*Combretum alternifolium* HBK.), the juice is used by the country people against sore eyes.
181. *Bejuco de Estrella* (a species of *Wilbrandia*), said to be a powerful purge.
182. *Pimento bark*, from Táchira. Botanical origin not known. Highly aromatic, or rather of a burning taste.
183. *Vanilla* (*Vanilla spec.*), prepared by Sr. F. Fernandez Róbles, Yuma, south coast of Lake of Valencia.
184. *Fustic* (*Maclura tinctoria* L.). Large quantities are shipped from Maracaibo, Puerto Cabello and the eastern ports. Red wood

is likewise shipped from the same ports. It comes from a species of *Hæmatoxylum*.

185. *Soap-berries* (*Sapindus Saponaria* L., called *parapara* in Venezuela) contain saponine, and give therefore a froth when shaken with water, just like soap. They are sometimes used as a substitute of soap by the poor people.

186. *Orore gum* (*Pithecolobium hymenæefolium* Benth.). May be used like Arabic gum.

187. *Espongilla*, the interior fibrous part of the fruits of *Luffa purgans* L. Purgative.

188. *Caricarito*, a resin obtained from *Elaphrium tomentosum* Jacq.

189. *Curcas Oil* (*Yatropa Curcas* L.). Purgative.

190. *Pildoras tocológicas*, prep. by Dr. Bolet, Carácas.

191. *Elixir americano*, prep. by the same.

192. *Alcoholic Extract of Carcanapire*, prep. by E. Albrand, Carácas. Antirheumatic.

193. *Jarabe clorótico y emenagogo*, prep. by the same.

194. *Extract of Eucalyptus*, by the same.

195. *Jarabe de Totumo* (calabash syrup,) by the same.

196. *Bálsamo hemostático italiano*, id.

197. *Extract of Congrina* (*Aristolochia ringens* Vahl.), id.

198. id. of *Malaguetta*, id.

199. *Bálsamo africano*, id.

200. *Pildoras de Oro*, prep. by Dr. Diaz, La Guaira.

201. *Balsamo de Gil*, Carácas. A very efficacious remedy for curing wounds.

202. *Elixir Tropical*, prep. by Dr. M. M. Ponte, Carácas.

e. ANIMAL SUBSTANCES EMPLOYED IN INDUSTRY AND MEDICINE.

203. *Isinglass*, called in Venezuela *Buche de Vagre*. La Guaira. It is the swimming bladder of a large sea fish.

204. *Manteca de Ladron*, the liquid fat of the Hermit Crab (*Paragurus* spec. said to cure laxations of the limbs.

204. *Bone-oil* for machinery,

206 *Turtle-oil*. It is obtained from the eggs of two species of turtles which are very abundant in the river Orinoco (*Peltoccephalus Tracaya* Dum. Bibr.). Humboldt has very graphically described the manner in which the Indians collect the eggs and prepare the oil. When it is fresh, it is of no taste, and used like butter.

207. *Turtle shell*, from Margarita. Price actually at LaGuira about four dollars a pound.

IV. AGRICULTURE AND HORTICULTURE.

The principal wealth of Venezuela consists in the inexhaustible fertility of its soil, capable of producing the cultivated plants of all zones in different heights over the level of the sea. "Can there be found anything more delicious," says Humboldt of the valley of Carácas, "than a temperature which remains during the day between 68 and 80 degrees, and during the night between 60 and 65, so that the bananas, oranges, coffee trees, apples, peaches, and wheat grow in the same limited spot."

Three different regions are to be distinguished with respect to temperature. The hot region (*tierra caliente*) reaches from sea level up to 700 metres, it has a mean temperature of 77 degrees. Some places, of course, are still warmer, but nowhere is the heat excessive, nor the climate decidedly unhealthy. The temperate region (*tierra templada*) reaches from 700 metres to 2000 metres, and has on its upper limit a mean temperature of 65 degrees; it enjoys therefore an eternal spring. Nearly the whole coast range in the States of Cumaná, Bolívar, Aragua and Carabobo belongs to this second zone, and so does Carácas (920 metres over the sea), where there is a mean temperature of 72 degrees. April and May are the hottest months, December and January the coolest.

The cold region (*tierra fría*) comprises finally the mountainous country over 2000 metres. The limit of eternal snow is reached in the Sierra Nevada of Mérida at 4520 metres, but it descends sometimes 400 metres lower.

On the north coast of the country blows the eastern trade wind, presenting notable daily and yearly oscillations. There are but two seasons, the rainy and the dry one. The former begins in May or June, and closes in October, it is called *invierno* or winter; the other months are the dry season or *verano*, i. e. summer.

In Guayana it is somewhat different. The rainy season there being longer. It rains very seldom the whole day; the rain begins generally about three or four o'clock in the afternoon, when the maximum of daily heat has passed. In Carácas the mean quantity of rain is about 900 millimetre.

The Venezuelan agriculturists distinguish *frutos menores* 'vegetables, etc., for home consume, and *frutos mayores* (the great stable productions: cocoa, coffee, tobacco, cotton, indigo). The former are cultivated in small farms, called *estancias* and *conucos*, the latter in more or less extensive plantations, named *haciendas*.

The field-laborers are either paid for their daily work, or they enter into a kind of partnership with the owner of the ground. The daily salary is different in different parts of the country, and also in different seasons of the year. In the neighborhood of Caracas such a *peon* gets actually 60 to 70 cents, working ten hours a day. In the State of Aragua they pay 30 cents with meals, and 45 cents without them. In the other case the landlord gives the ground and the seed, the *peon* does the work, and the product of the crop is divided between both. Such a *peon* is called *medianero* (from *medio*, half). If the *medianero* furnishes the seed, he obtains two-thirds of the crop.

It must be confessed that there is still much routine in our agricultural system ; but there are already a great many intelligent men, who are desirous to introduce the improvement other countries have adopted in labor and implements.

COCOA.

The cocoa-tree (*Theobroma Cacao L.*) thrives best in hot and damp localities ; it is indigenous in South America, but cultivated since time immemorial. The best classes grow on the Caribbean coast between the mouth of river Unare ($1^{\circ} 45'$ east of Caracas) and that of the river Yaracuy ($1^{\circ} 20'$ west of Caracas), especially between La Guaira and Puerto Cabello. It will be superfluous to give here a botanical description of this useful tree ; a complete fruit is exhibited under No. 208, and imitations of the same in wax are in a glass case under No. 398 n.

An inferior kind of Cocoa is grown in the English Island Trinidad. It is more rustic in vegetation, yields larger crops, and suffers less from unfavorable weather and insects. But the taste of the seeds is bitter, they are smaller, flatter and harder than those of good Venezuelan cocoa or *cacao oriollo*. When the seed of this *Cacao Trinitario* is planted in the above mentioned region, the plants improve soon, and yield better crops ; and the reverse takes place, when good Cacao-seed is brought to Trinidad or the neighboring districts of the main land. *Cacao Trinitario* is about thirty per cent. chaper than the *Cacao oriollo*.

The cocoa-trees require shade for their development. This is achieved by planting between them another species of tree, called *bucare*, the *Erythrina umbrosa* HBK, which makes a high straight stem, and forms thus over the rather low cocoa-trees a lofty vault of foliage, which the rays of the tropical sun cannot penetrate. A cocoa plantation is laid out in parallel lines, the trees standing fifteen feet

from each other, whilst the shade trees are at a double distance. At seven or eight years the trees give the first crop. The flowers appear on the old wood, not on the tender branches, throughout nearly the whole year; but there are two principal crop-times, in July and in December. The fruits are in shape very much like cucumbers; some are yellowish, others dark-brown, with ten more or less marked longitudinal ribs. The outer part is fleshy, and when cut open, the seeds may be taken out. The latter are carefully dried, and finally spread out on yards covered with red ferruginous earth or ground bricks, which gives them their particular reddish color. Formerly this operation was omitted, on the contrary, every thing was done to get the seed as clean as possible. Of late this red coating, however, has been generally adopted; it may be that thus the cocoa is less exposed to the destructive attacks of insects.*

The grains are well prepared, when the pergameneous husk breaks easily, and the interior shows throughout a uniform dark-brown color without white spots.

Cocoa is generally sold per *fanega*, a quantity equal to 111 pounds English weight. The choicest classes cost \$30 to \$35, the common ones \$10 to \$12.

It has been stated already in part I of this pamphlet, that the exports of last year were 4,328,577 kilogr. In 1873 to 74 the exports were 3,164,411 kilogr. In 1872 to 73 only 2,748,539, and in 1871 to 72, 2,539,300 kilogr., so that in four years there has been an increase of about 70 per cent. The total amount of the cocoa crops is, of course, much larger, as a considerable quantity, at least quite as much, is wanted for the consume: cocoa and chocolate being a favorite beverage in the country. The exports are principally sent to Spain.

We give now the list of the samples exhibited:

- 208. *Cocoa fruit*, in alcohol.
- 209. *Cocoa Irapa* (south coast of Peninsula Paria).
- 210. *id.* *Carúpano* (Cumaná).
- 211. *id.* *Rio Caribe* (Cumaná).
- 212. *id.* *Canuabo* (20 miles south-west of Puerto Cabello).
- 213. *id.* *Sabana*.
- 214. *id.* *San Felipe*.
- 215. *id.* *Barcelona*.

* The Cocoa trees have their greatest enemy in the larvae of a small beetle, scarcely an inch long, known to entomologists under the name of *Ancistrosoma farinosum* Sallé.

- 216. *Cocoa Uchire.*
- 217. *id. Rio Chico.*
- 218. *id. Choroní.*
- 219. *id. Caucagua.*
- 220. *id. Ocumare.*
- 221. *id. Uritapo.*
- 222. *id. Güigüe.*
- 223. *id. Borburata.*
- 224. *id. Capaya.*
- 225. *id. Patanemo.*
- 226. *id. Chuao.*
- 227. *id. Curiepe.*
- 228. *id. Maracaibo.*

The cocoa of Chuao (No. 226) has the reputation of being the best in Venezuela, and has, without any exaggeration, no equal in the whole world. Chuao is a large plantation between La Guaira and Puerto Cabello, the property of the University of Carácas.

This will be the best place to mention the samples of *Chocolate*.

229. *Luis Rus & Co.*, Carácas (formerly Duvall & Co.), Chocolate. Name of manufactory "Al Indio."

230. *Setoain, Semanario & Co.*, Carácas. Chocolate. Name of manufactory "La Caraquefia."

231. *Fullié Hermanos*, Carácas. Chocolate. Name of manufactory, "La India." The chocolate of this manufactory obtained both in Vienna and Santiago de Chile a medal of merit.

The most important product of Venezuela is

COFFEE.

This precious plant is cultivated in the country since 1784, when a Catholic priest, T. A. Mohedano, at Chacao, near Carácas, formed the first small plantation. Soon after Bart. Blandin obtained seed grains from Martinique, and became the founder of a large estate which to this day bears his name. The cultivation of coffee spread gradually over the whole country, whilst that of the indigo almost disappeared. In the last fiscal year the exports were, as stated above 35,721,130 kilogr., and making allowance for New Grenadan coffee exported via Maracaibo, we may adopt 35 million kilogr. as the approximative value of Venezuelan coffee sent to the markets of the world in one year. At least 30 per cent. of this quantity consumed in the country, making a total production of over 50 millions of kilogr., or more than 800,000 quintals.

The coffee tree thrives best in the temperate region, but it is also cultivated in the *tierra caliente*, where, however, the quality remains an inferior one.

The trees are planted in parallel lines under the shade of large trees, the bucare (*Erythrina umbrosa* HBK and *E. mitis* Jacq.) deserving preference for this purpose. Coffee may be grown without shade, especially on the high lands; but in this case the trees do not last long.

At the age of four or five year the tree yields its first crop. The flowers appear in April or May, and the aspect of a plantation covered by millions of snowy, sweet-scented blossoms is one of the finest sights that can be seen. A flowering branch, imitated in wax, is exhibited under No. 398 b. The flower lasts but one or two days. The fruits are at the beginning green, afterwards they turn yellowish, and finally become deep red, very much like cherries. In the colder region there are constantly flowers, unripe, and ripe fruits on the same tree. The crop begins in Venezuela in October. The fruits are picked by hand, and carried to the machinery house. The further preparation for the market is done in two different manners. The more imperfect is the following: The berries are spread out upon terraces or yards, made of bricks or cement, and left there to dry. The better system is to employ a machine called in Spanish *Descerezador* (which may be rendered coffee-pulper). This apparatus is exhibited in our department under No. 282. The berries are thrown into the inclined box at the top, and settling down they pass between an iron knife and a rotating cylinder covered with elevated points, which tear the pulp and partly take it off. The seeds are thus quickly cleaned, and a comparatively short time is sufficient to get rid of the still adhering fragments of pulp. This is done by washing the seeds in a water tank, after which they are carefully dried and sent to the *trilla* or mill. The dry pergamineous shell which forms the outer part of the seed, is here broken, either by stamps, or by heavy stone or wooden wheels, moving in a circular channel, where the seeds are spread out. When this is done, the husk is separated from the grain, and the selecting of coffee closes the whole series of operations. Coffee prepared in this way is called *Café descerezado*. When no pulper is employed, the dried berries are carried to the *trilla*, and coffee thus prepared is known under the name of *Café trillado*. The latter is inferior, as the drying of the berries causes a deteriorating change in color, smell and taste of the grain. Good coffee ought to have a light bluish green color, and a

peculiar aromatic smell, and the grains should be of equal size and shape.

In Venezuela 1000 to 1500 coffee trees are planted on a *fanegada* of ground.* A well developed tree yields from one-half to one pound of coffee ready for the market.

The coffee-tree suffers little of diseases, and has few insect enemies; among the latter the *Cemiostoma coffeellum* attacks the leaves. It is a small moth; the caterpillar is a leaf-miner, and produces rusty spots on the leaves, which are known in Venezuela under the name of *mancha de hierro*, i. e. iron spots. There is an excellent description of this insect in an early volume of the "American Naturalist," to which we refer our readers. In Venezuela this plague exists fortunately in a very insignificant degree. Another disease is called *Candelillo*, or Small Fire, because of the charred appearance it gives to the leaves. It is the consequence of a fungus spreading over the underside of the leaves, and thus killing them. The *Candelillo* occurs, though very seldom, in wet years.

Venezuela coffee is known in commerce after the ports whence it is shipped, as La Guaira, Puerto Cabello, and Maracaibo. It is, generally speaking, of good quality, and Maracaibo is often sold as Java; whilst inferior kinds of coffee from other countries are not seldom sold as coming from La Guaira. Dr. Nicolau T. Moreira, member of the Brazilian Commission in the United States Centennial Exhibition, and no doubt a good authority on the coffee of his country, says the same of the coffee of Ceará, which in Hamburg is often called La Guaira, in order to obtain a higher price. La Guaira and Puerto Cabello coffee may be easily recognized by the beautiful color, aroma, and taste.

The following samples are exhibited in the Venezuela department:

233. *Dr. Man. Ant. Diez*, Carácas. Coffee, sun dried and covered with the thick shell.
234. *I. A. Mosquera*, Carácas, Plantation La Guia.
235. *Nicanor Linàres*, Plantation La Urbina, near La Victoria.
236. *Vicente Velazquez*, Plant. San Diego.
237. *I. R. Pacheco*, Plant. Carimao, Bolívar.
238. *Guill. Santana*, Plant. La Fraternidad, Bolívar.
239. *J. J. Guerra*, Plant. Rodeo, Mariches.
240. *Dr. Mod. Urbaneja*, Plant. Agua Negra.

*A *fanegada* is a square of 100 Spanish *varas* side, or equal to 8600 square yards or about 1½ acres.

241. *S. Rivas*, Plant. Guaracarumbo, between Carácas and La Guaira.

242. Dr. Laloubie, Plant. El Roble.

243 *J. M. Padron*, Plant. Guanasna, near Petare.

244. *Andres Rivas Pacheco*, La Faltriquera, Agua Negra.

245. *Cárlos F. Diaz*, Carácas.

246. *Mr. Salle*, Plant. Guamal.

247. *I. Diaz Chávez*, Plant. San José, Los Dos Caminos.

248. *Sr. Monegui*, Plant. San Pablo del Prado.

249. *Alonzo Rivas*, Plant. Farfan.

250. *Raf. Lizarraga*, Plant. El Cambural.

251. *P. A. Diaz*, Carácas.

252. Samples of Maracaibo coffee, exhibited by Messrs. I. Dallet & Co., Philadelphia.

253. *I. A. Mosquera*, Carácas; *Café Caracolillo i. e.* shell coffee. This is the result of the abortion of one of the grains in the berry, the other one occupying the whole interior space, but remaining always much smaller as in full sized fruits. It is no different kind of coffee, such fruits occurring generally at the ends of branches in the common trees, and therefore probably a consequence of deficient nourishment. In Guayana, however, trees are said to exist which produce nothing but *caracolillo* coffee.

254. *I. A. Mosquera*, Carácas; *Café Morocho i. e.* Twin-coffee. Another abnormal shape of the grains, distinguished by its large size and the irregular furrow which is seen on the flat side as well as on the convex side. It is, physiologically considered, a separation of the two seed-leaves of the grain, so that such seeds cannot germinate.

255. *Santiago Sosa*, Plant. El Rosario, near Santa Lucia. Dwarf Coffee. Result of checked development in trees growing in poor soil and dry weather.

256. *P. Zerega & Co.*, Carácas. White coffee.

COTTON.

257. *Cotton*, State Barcelona.

258. *id.* (white), Margarita.

259. *id.* (yellow), *id.*

260. *id.* Aragua.

261. *id.* Guacara (Sr. H. Wallis).

262. *id.* Portuguesa (known under the name of *Jujure*).

Cotton can be grown in the whole country, but the cultivation is

falling off gradually, because of the low prices the article brings in the market.

In the fiscal year, 1871-1872, the exports of Puerto Cabello and La Guaira were : fifty-seven thousand six hundred and thirty-seven quintals; in 1872-1873, forty-seven thousand five hundred and seven quintals; the total production in 1873-1874 was seventy-six thousand nine hundred quintals.

The soil best adapted for cotton is in the environs of the Lake of Valencia, where first-rate sea island has been grown.

TOBACCO.

263. *Barinas Tobacco*. The State of Barinas cultivated formerly a considerable quantity of tobacco, which however, has nearly disappeared from the market.

264. *Orituco* (south of coast range, State Guárico). About 200 to 250 quintals are brought to Carácas, price \$13 to \$15 each.

265. *Cumanacoa*, State Cumaná. The crop is of 10,000 to 12,000 quintals, price \$7 to \$12.

Besides these samples, some other classes are known in Venezuela. *Capadare* (between Puerto Cabello and Coro), crop 1,000 to 1,200 quintals, price \$30 to \$36; *Cumaná*, very much like Cumanacoa; *Guanape* (in the eastern part of State Bolívar), crop 10,000 to 12,000 quintals, price \$14 to \$15; *Maturín*, crop 3,500 to 3,000 quintals, price \$13 to \$14; *Quebrada Seca* (Barinas), 500 to 600 quintals, \$17 to \$18.

266. *Echseuria & Co.*, Carácas; Cigarettes. Name of firm "El Cojo."

267. *I. F. Delgado*, Carácas. Snuff.

268. *C. Durand*, Carácas. Snuff.

269. *Chimó*. In Mérida, Trujillo, and the western Venezuelan Andes, a thick tobacco extract is prepared, and mixed with *urao* (see minerals, No. 47). It is preserved either in small horn-boxes, or between dry corn-leaves, and constitutes one of the most indispensable commodities of the inhabitants. A small portion is taken, rubbing it against the gums of the mouth, when it gets gradually dissolved and swallowed down. It appears that the indigenous tribes made use of *chimó* long before the arrival of the Spaniards, but the addition of the *urao* was not invented until in 1781, by one Pedro Verastegui. Tobacco and *urao* were, in the time of the Colony, a Spanish royalty.

SUGAR.

The sugar cane (*Saccharum officinale*, var. *tahitense*) is extensively cultivated in the hotter parts of the country. In twelve to fifteen months the cane is full grown, cut off, cleaned of the leaves and taken to the mill (called *trapiche* in Venezuela). Here the juice is pressed out by squeezing it between two strong iron rollers. This raw juice is called *guarapo*, and runs into large iron pans, where it is boiled and inspissated by gradual evaporation. Then it is poured into wooden moulds of conical shape, about fifteen inches high, in which it solidifies by imperfect crystallization. Thus the brown sugar, called *papelón* is made, of which there are samples under No. 270. The solid residue of canes in the mill is called *bagazo*; it is used to maintain the fire under the evaporators. A *tablón* (8600 square yards) yields in good plantations 1000 quintals of cane, holding 90 per cent. or 900 quint. of juice. But this quantity is not brought out by the mill, there being generally a loss of one-third part, so that only 600 quint. of juice enter the pans. In normal conditions the juice contains eighteen per cent. of sugar.

The quantity of sugar produced is scarcely sufficient for the consume in the country, no more than about 25,000 *tablones* being cultivated. A *papelón* weighs 4 lb.; 64 are a *carga*, the price of which oscillates very much from \$8 to \$16. This brown sugar has been exported to the United States, but with no profitable result.

271. *White Guatire Sugar*, refined with wet clay. This is done in the following manner: The loaf is put point down, and the clay is then spread on the flat bottom surface. The water filters gradually through the loaf, taking off all the impurities in the form of syrup. The operation is repeated two or three times; afterwards the sugar is dried. Price actually, at Carácas, eight dollars; but it rises sometimes to twelve dollars and more.

272. *Aguardiente de Caña* or Sugar-brandy. Large quantities are prepared from cane, which is not rich enough for sugar-making. It is the common drink of the people. A *carga* (56 litres) costs now about \$10, the price ranges from \$6 to \$10 dollars.

Of *Cereals* the following are cultivated in Venezuela.

273. *Rice* (*Oryza latifolia* Desv.), River Tuy. One *almud* of land that is to say, the space which requires one *almud*, or a little more than one peck, of seed produces about 360 almudes of rice in the husk, which are reduced to one-half in the cleaning mill. At present the *fanega*, or nearly five bushels, cost \$15.

274. *Wheat*, cultivated in the German colony Tovar, 6300 Engl. feet over sea level, mean temperature 60 degrees. This colony was founded in 1848, but it is not well situated, and going backwards. Wheat is also cultivated in the mountain of Mérida and Trujillo, and formerly there were fields of it even in the valley of Carácas. Weight of wheat from Tovar 68 to 65 pound per bushel.

275. *Barley*, Colony Tovar. Weight 57 to 60 pound per bushel.

276. *Rye*, Colony Tovar. Weight 57 to 60 id. id.

277. *Oats*, Colony Tovar. Weight 30 to 32 id. id.

278. *Broom Corn* (*Millo*), uncommon.

279. *Indian Corn*. Several varieties are cultivated; the best being called *Maiz cariaco*. A small variety, named *Maiz amapito*, gets ripe within forty days after being sown. Indian Corn is cultivated either as green fodder for horses and mules, or as bread corn. In the first case the husbandman wants a luxurious development of the leafy parts of the plant, which is obtained by sowing from six to eight grains in the same little hole. It is cut when the flowers begin to appear; before that time it is said to be hurtful to the animals. It is called *Malhojo*, and this cultivation is very remunerative in the neighborhood of towns. The *isleños*, or immigrants from the Canary Islands, are the principal malhojo growers; they bring it to town in the morning, and sell a regular donkey load at \$1.50 to \$2.50 When bread corn is the object of the crop, three or four grains are sown in the same place. The return is generally very good, if the rain does not fail.

Indian Corn is not ground in Venezuela. The grains are soaked in water, then their outer shell is peeled off in a wooden mortar with wood pestle, and the pulpy mass is shaped into little round cakes, which are baked on a hot iron plate, called *budare*. These little breads are called *Arepas*.

Leguminaceous Seeds. We have in Venezuela a great variety of beans and similar vegetables, mostly belonging to the botanic genus Dolichos. The following samples are exhibited:

280. *Quinchonchos*, *Cajanus indicus* Spr.

281. *Judias*.

282. *Caraotas coloradas*, or red beans.

283. *Chick-peas*.

284. *Caraotas 40 dias*, or 40 day beans.

285. *Caraotas blancas*, or white beans.

286. *Caraotas tigratas*, or speckled beans.

287. *Caraotas ponchas blancas*, white plump bean.

- 288. *Caraotas huevo de paloma*, pigeon egg bean.
- 289. *Caraotas negras*, black bean.
- 290. *Caraotas amarillas*. yellow bean.
- 291. *Frijol colorado*, reddish bean.
- 292. *Frijol cabeza negra*, black headed bean.
- 293. *Frijolitos*, dwarfish bean.
- 294. *Alverjas*, peas.
- 295. *White Guaracaros*.
- 296. *Tapiramos*.
- 297. *Tapirucusu* (*Dolichos Lablab*, var *purpureus*).

STARCH.

- 298. Starch of *Dioscorea alata* L., or Yams.
- 299. id. of Amé, a scitamineous plant from Rio Negro, but not exactly known.
- 300. Starch of Lairen, *Calathea Allouya* Lindl.
- 301. Tubers of the same.
- 302. Starch of Apio, *Arracacha esculenta* DC.
- 303. Starch of Banana, *Musa paradisiaca* L.
- 304. Potato Starch.
- 305. *Yucca* Starch, *Manihot utilissima* Pohl.
- 306. Starch of Bitter Cassada plant, a variety of the foregoing.
- 307. Cassada flour, the farinha of the Brazilians.
- 308. Corn Starch, *Zea Mays* L.
- 309. Starch of Mapuey morado, *Dioscorea trifida*.
- 310. Ocumo Starch, *Colocasia esculenta* Sch.
- 311. Sweet Potato Starch, *Batates edulis* Ch.

FRUITS AND VEGETABLES.

- 312. Sample of cauliflower, Carácas. The following vegetables are likewise cultivated: Cabbage, lettuce, carrots, turnips, parsley, celery, red beets, water cresses, onions, leek, radish, tomato, spinach, cucumbers, pumpkins, melons, watermelons, etc.
- 313. *Quimbombó*, (Gombo), *Abelmoschus esculentus*.
- 314. *Caruto*, *Genipa caruto* HBK. The fruits are edible, and contain a juice which yields an almost undestructible black color.
- 315. *Nisperos*, *Sapota Achras* Mill.
- 316. *Merey*, *Anacardium occidentale* L.
- 317. *Pimenton* and
- 318. *Aji* or Spanish pepper, both from several species of *Capsicum*.
- 319. *Red Banana*.

320. *Apple Banana.*
321. *Mamei*, *Mammea Americana* L., of a very sweet taste, very much like peaches.
322. *Limon dulce*, sweet lemon.
323. *Chayota*, *Sechium edule* Sw. A cucurbitaceus climber ; the fruit is used like squash, and presents the singular property of germinating before it falls off.
324. *Aguacate*, *Persea gratissima* Grt. The kernel is surrounded by a greenish pulp, very much like butter, it is eaten raw, with pepper and salt, and is of an excellent taste. This pulp contains about 81 per cent. water, 8 per cent. of a yellowish oil, 8 per cent. fruit sugar, nearly 2 per cent. starch, small quantities of malic and tartaric acid, 1.5 per cent. of a substance similar to gluten, 2.5 per cent. dextrine, and only 2 per cent. of cellulose. (Analyzed by Th. Peckolt, Rio de Janeiro).
325. *Chirimoya*, or sweet sop, *Anona Cherimolia* Mill.
326. *Guanábano*, or sour sop, *Anona muricata* L.
327. *Anon*, *Anona reticulata* L.
328. *Mango*, *Mangifera indica* L. There are three varieties ; the largest is named *manga*, the smallest *mango bocado* (*i. e.* mouthful), the third, which is the most common, is the *mango hilacho*, *i. e.* fibrous, so called on account of the tough fibres which form the outer seed-coat run through the pulpy part of the fruit. It ripens in May or June, and then is so common that one hundred cost no more than 30 or 40 cents. The taste is like sweet carrots, with a very faint flavor of turpentine. The tree has a beautiful evergreen foliage. The wood is of no value, the bark contains tannic acid. There are very often two seedlings in the same seed.
324. *Toronja*, *Citrus Peretta* Risso.
320. *Lima*, *Citrus Limetta* Risso.
321. *Parcha Granadina*, *Passiflora quadrangularis* L.
322. *Parchita*, *Passiflora ligularis* Jacq. This is one of the finest fruits in existence.
323. *Piña*, or pine-apples.
324. *Berengena*, or egg-plants, *Solanum Melongena* L.
325. *Bread fruit*, *Artocarpus incisa* Lin. fil. Another variety without seeds is likewise cultivated.
326. *Membrillos*, or quinces, *Cydonia vulgaris* Pers.
327. *Duraznos*, or peaches.
328. *Tuna*, or Indian fig, *Opuntia Ficus Indica* Mill.
329. *Pomarosa*, or Rose apple, *Jambosa vulgaris* DC.

340. *French Tomato*, Cyphomandra betacea Sendtn. This fruit contains a considerable quantity of citric acid.

341. *Almendrones*, Terminalia Catappa L.

342. *Icaco*, Chrysobalanus Icaco L.

343. *Morecure*, Couepia sp.

344. *Guayabo*, Psidium Guava Raddi.

345. *Mamon*, Melicocca bijuga Jacq.

346. *Cotoperiz*, Melicocca olivæformis HBK.

Besides these we must mention the following not represented in the Venezuelan Exhibition : *Cajúa* (Sicana odorifera Nd.), tamarind (*Tamarindus occidentalis* L.), *Ciruela de hueso* (*Spondias purpurea* L.), *Ciruela de fraile* (*Byrsonima glandulifera* Kth.), *jobo* (*Spondias lutea* L.), *Cereza* (*Cicca disticha* L., the same name is given also to *Malpighia glabra* and *M. punicifolia*), *guindas* (*Flacourtia sapida* Roxb.), *Uva d playa*, or sea side grape (*Coccoloba uvifera* Jacq.), *nogal*, or walnut (*Juglans insularum* Gris.), *strawberry*, *guayabita* (*Campomanesia aromaticata* Gris.), *granadas*, or pomegranates (*Punica granatum* L.), *lechosa* (*Carica Papaya* L.), *pitahaya* (*Cereus* sp.), *Caimito* (*Chrysophyllum Caimito* L.), *Garci-González* (*Lucuma Rivicoa* Grt.), *Zapota mamei* (*Lucuma mamosa* Gr.), and many others.

Of exotic fruits we cultivate apples, figs, and grapes. The apples are not very good ; the grapes of Cumaná are of an excellent taste. No wine is made.

PRESERVED FRUIT AND SWEETS.

347. *Cabello de angel*, i. e. Angel's hair, *Cucurbita melanosperma*
A. Br.

348. Peach-jelly.

349. Mamey (custard apple).

350. Quince-jelly.

351. Guanábana-jelly.

352. Pine-apple preserve.

353. Calabaza preserve.

354. Guava-jelly.

INDUSTRY. WOMEN'S WORK.

355. Absinthe liquor, Antonio Lira, Caracas.

356. Anisette id. id.

357. Toronja id. id.

358. Orange wine, Dr. F. Bolet Petare.

359. Vinegar, G. Fischer, Carácas.
 360. Vinegar, Orta Jordan Hermanos, Carácas.
 361. Old Imperial Rum, Lorenzo Badillo, La Guaira.
 362. Special Rum, Dr. A. Alamo, Carúpano.
 363. Aromatic Bitters, Ed. Albrand, Carácas.
 364. Aromatic Bitters, Ed. Gathman, id.
 365. Aromatic Bitters, Vadskiær, Valencia.
 366. Angostura Bitters, R. Otero Vigas, Upata.
 367. Indigenous Bitters, O. Vigas, Carácas.
 368. Angostura Bitters, I. Meinhardt & Son, Ciudad Bolívar. Obtained a medal in Santiago de Chili.
369. Angostura Bitters, Siegert & Son, formerly of Ciudad Bolívar, now at Port of Spain, Trinidad. We exhibit these Bitters in the Venezuelan Department, as there are still in the market considerable quantities made in the Republic before the factory was removed to Trinidad. Our sample is thus a production of Venezuela industry. Obtained medals in Vienna and Santiago de Chili.
370. G. Astengo & Co., Carácas, boots and shoes. This manufactory makes from 450 to 500 pairs of shoes every day, employs 210 workmen and 35 women, 21 sewing machines, 10 cutters, and 15 clerks. It is directed by Antonio Delfino Sirombra.
371. Pellier & Co., Carácas; Candles and Soap.
 372. Sprengel, common saddle.
 373. id. sweat-cloth, embroidered in gold.
 374. Dallet, I., Philadelphia; Hammock adorned with feathers of indigenous birds, made by the Indians of Rio Negro. The fibre is that of the Cumare-palm, the *Astrocaryum vulgare* Mart., called Tucum, in Brazil.
375. Bliss, W., Philadelphia; hammock, like the foregoing.
 376. Another hammock of the same description, exhibited by the Venezuelan Commission.
 377. Common hammock, or *Chinchorro*, of cotton thread.
 378. id. of Pita fibre.
 379. id. of spun cotton, Margarita.
 380. id. of Moriche, a fibre obtained from the *Mauritia* palm, Orinoco.
381. Ordinary glue, L. Wichmann, Carácas.
 382. Ordinary hats of palm fibres.
 383. Gunny bags of jeniquen fibre.
 384. Alpargatas, or common sandals used by the country people.
 385. Pita halters.

386. Pita crppers.
387. Blank books and copy books, manufactured by A. Rothe, Carácas, exhibited by the Venezuelan Commission.
388. Bliss, W., Philadelphia ; Stuffed Birds.
389. General Guzman Blanco, President of the United States of Venezuela ; two large bouquets of Artificial Flowers, made of the feathers of indigenous birds, the work of Mrs. Simon, San Esteban, near Puerto Cabello.
390. Boulton, W., Philadelphia; two bouquets of Artificial Flowers.
391. Basket, with Artificial Flowers, exhibited by the Venezuelan Commission.
392. Boulton, W., Philadelphia ; four carved Totumas. These are the shells of the fruit of the calabash tree, and used as kitchen utensils by the common people.
393. Boulton, W., Philadelphia ; collection of Fruits and Flowers made of wax :
- a.* Cotton.
 - b.* Coffee.
 - c.* Pelicano, an air-plant (*Cycnoches chlorochilon*).
 - d.* Merei.
 - e.* Mango.
 - f.* Plumieria rosea L., called amapola.
 - g.* Mayflower, white (*Cattleya Wageneriana*).
 - h.* Azahares, or orange flowers.
 - i.* Nispero.
 - j.* Plátano, or large banana.
 - k.* Rose apple, or Pomarosa.
 - l.* Camburitos, a variety of small banana.
 - m.* Parchita.
 - n.* Cocoa.
 - o.* Sweet lemon.
 - p.* Riñon, *Anona reticulata* L.
 - q.* Tuna, or Indian figs.
 - r.* Aguacate (*Persea gratissima*).
393. Pin cushion, *rejilla*.
394. Handkerchief, also *rejilla*.
395. Two Handkerchiefs, likewise *rejilla*, exhibited by W. Bliss, Philadelphia.

Rejilla means a small net. At the beginning of the work, a certain number of threads are carefully drawn out, and thus an artificial

canvas is formed, into which the embroidery is afterwards wrought.

396. *Handkerchief*, called *Soles*, i. e. suns, made in Maracaibo.

397. Basket of *Estropajo*.

398. An *Estropajo* fruit. This is the *Luffa cylindrica* of botanists; the interior of the fruit forms a dense tissue of wire-like fibres, containing three longitudinal tubes with numerous black seeds.

399. Coat Metre, invented and exhibited by A. Fourastié, Carácas. A special pamphlet may be had, in which the construction and use of the instrument is fully explained.

ARTS.

400. R. Syers, an oil-painting.

401. Map of Venezuela, by Coronado Millan.

402. Map of Carácas, lithogr. by Neun, Carácas.

403. Printed books, from the printing establishment of F. T. de Aldrey, Carácas. Employs over one hundred workmen, and is furnished with the excellent presses constructed in this country by Hoe. The books are official publications, issued by the Venezuelan Government. Amongst them there are the latest *Memorias*, or Official Reports of the different Ministeries, the Codes, the Recapitulation of Laws, the Commentaries on the Civil and Commercial Code (by L. Sanojo), the Collection of Documents referring to the public history of Simon Bolivar, published by Azpurua, (5 vol. are out, the work is being continued), the collection of contemporaneous Venezuelan poets, by Dr. J. M. Rojas, and many others. Most of the volumes were bound by Cruz Leon, Carácas.

404. *F. T. de Aldrey*, a copy of President Guzman's last Message to Congress, (1876), printed on bristol paper, bound in the binding department of Mr. Aldrey's large typographical establishment at Carácas.

405. An allegoric representation of General Washington. He is supposed to enter the Temple of Glory ; at his sides there are the busts of Columbus, the great discoverer, and of Simon Bolivar, who gave freedom and independence to a large part of South America. The original drawing was made by Cañizares, a Spanish painter ; the work was executed in hair on glass by Faustino Padron, of Carácas. The different parts are made with hair of eminent Venezuelans, as stated in the documents which accompany the exhibit. So the head and hands of Washington are made with hair of Bolívar ; the cuffs with hair of General Laurencio Silva ; the coat with hair of General José Gregorio Monágas, etc. The work is pre-

sented by General Guzman Blanco, in the name of Venezuela, to the United States.

406. *Ramon Bolet*, finished water-colored sketch : forest scenery on the river Catuche in the mountains north of Carácas.

407. Portrait of General Guzman Blanco, drawn by Curtis Taylor, exhibited by General Pile, formerly United States Minister Resident, Carácas. It is a striking likeness.

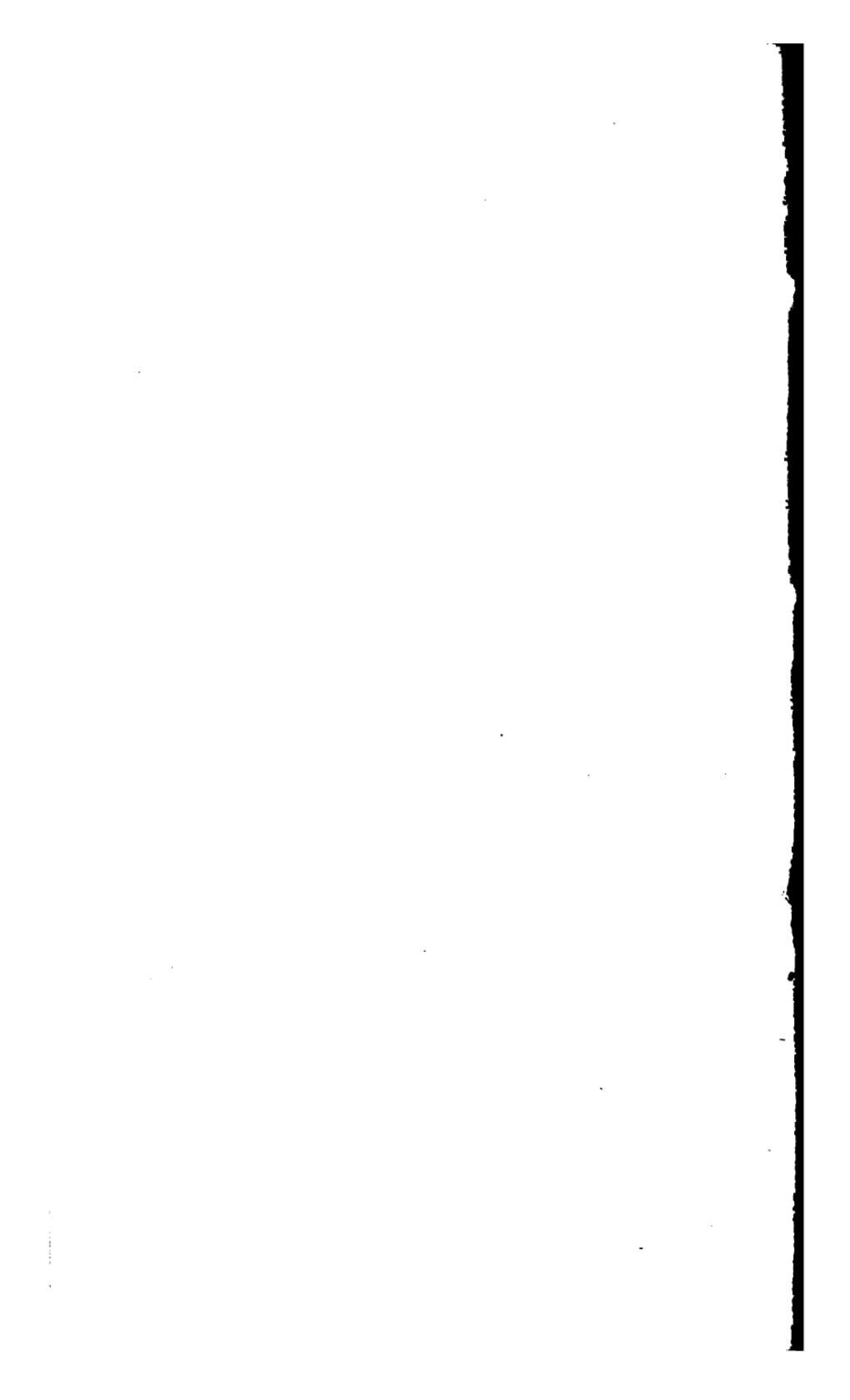
408. Leon de la Cova, Consul of Venezuela, Philadelphia ; The Act of the Independence of Venezuela, a lithography.

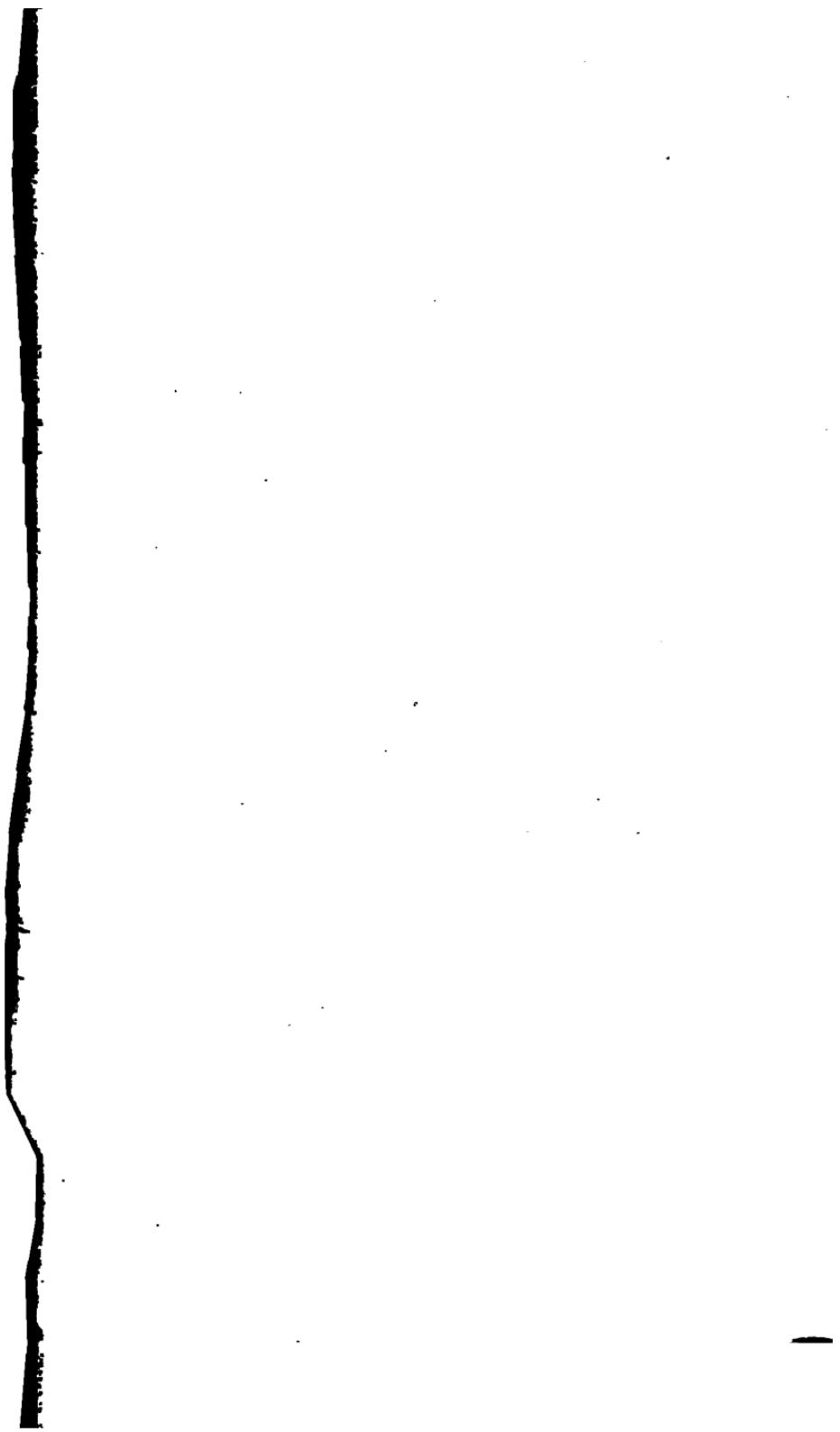
This Catalogue may be had gratis at the Venezuelan Department, Agricultural Building.

NOTE.

The undersigned is desirous of obtaining, in exchange, samples of natural or industrial productions of other countries, in order to exhibit them permanently in the Museo Nacional of Carácas. Mr. Leon de la Cova, Consul of Venezuela in this city, will cheerfully take charge of the exchange, as soon as the Centennial Exhibition has closed. Further information on any of the subjects treated of in this pamphlet, will be given on application to

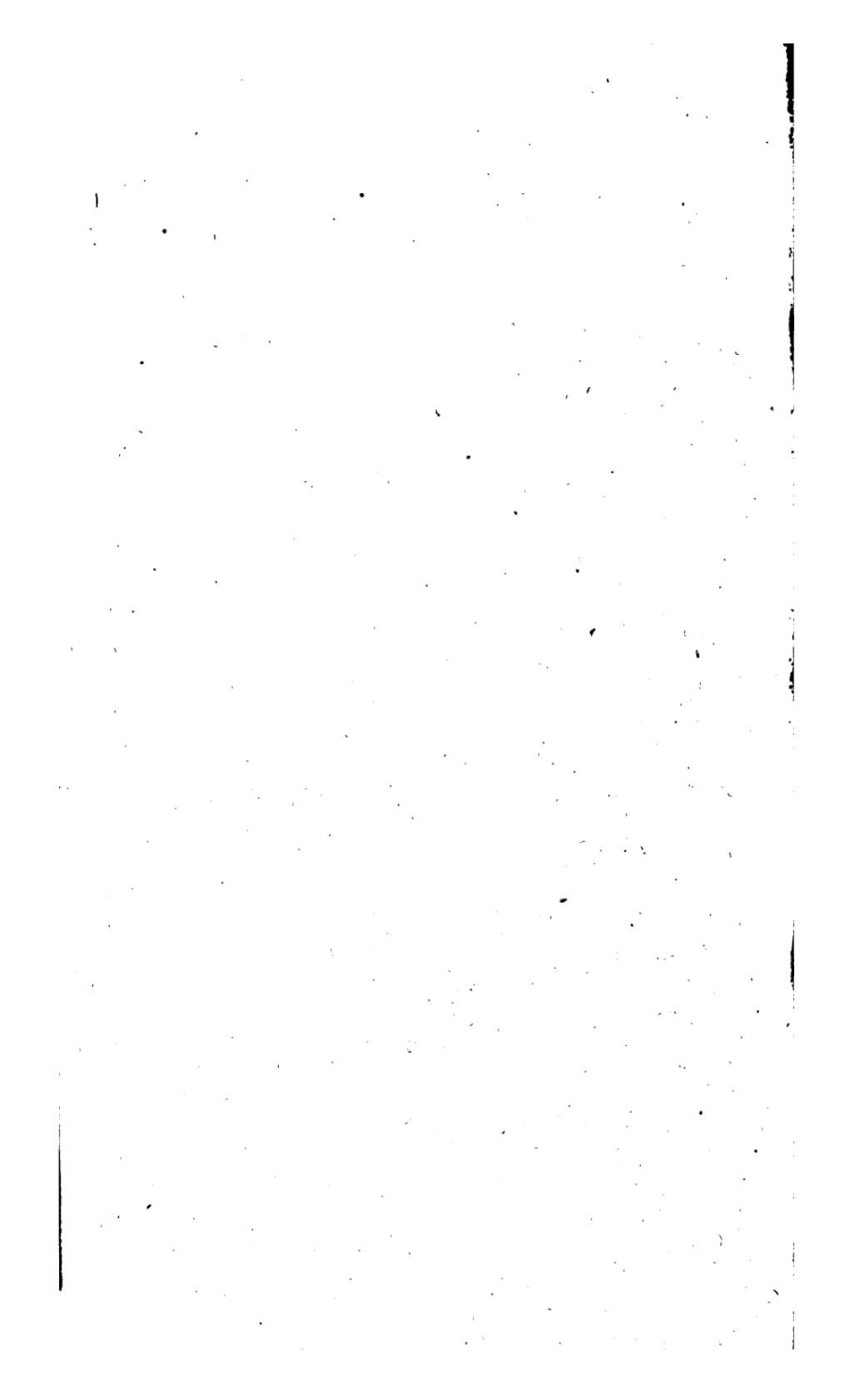
DR. A. ERNST,
Caracas, Venezuela.













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